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GRUMMAN
news

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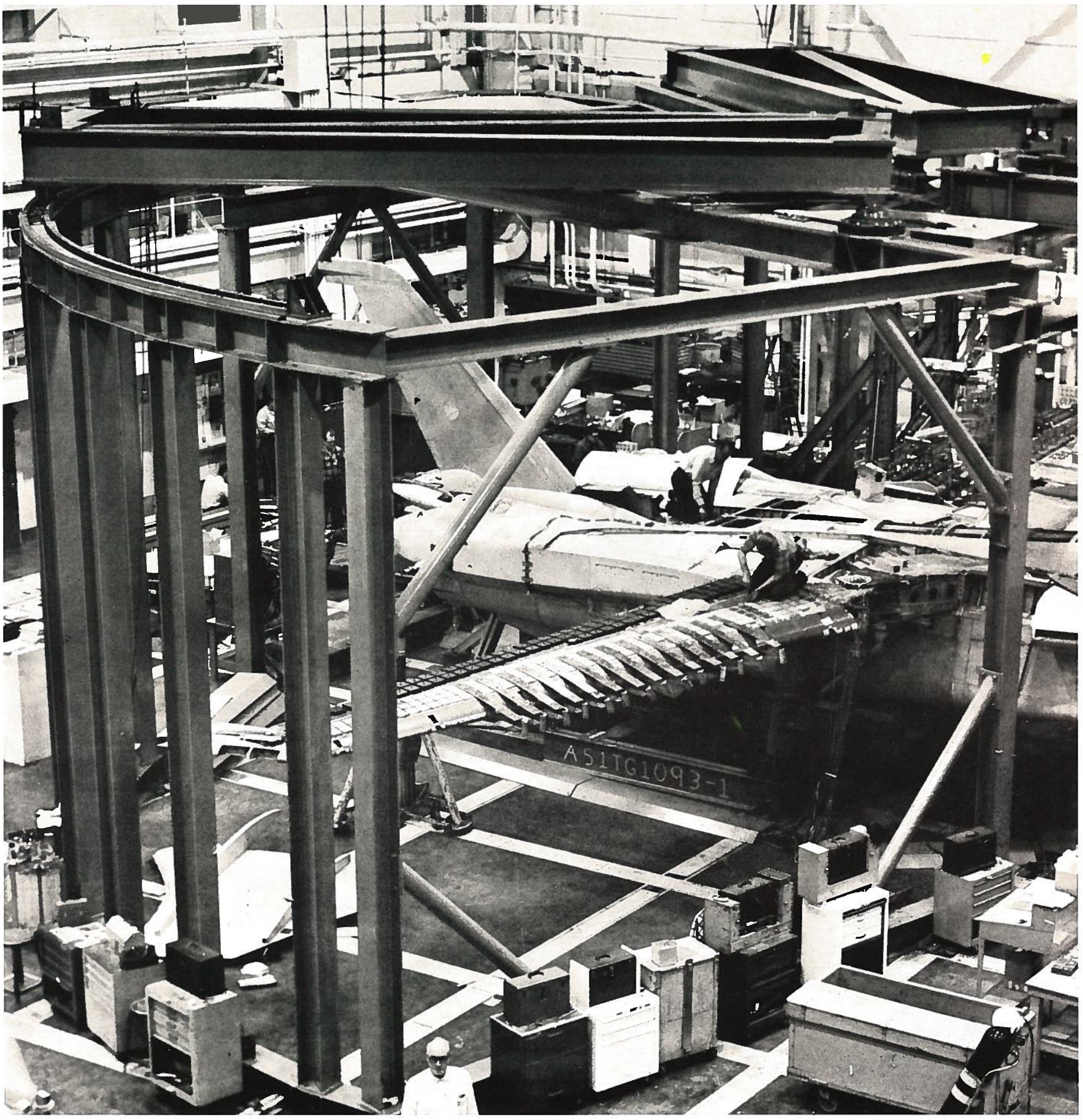


G.I.I. elects, page 2; two get top posts, page 3; Evans views industry, page 12

Grumman International elects Kirbow, Milano to new duties

Grumman International, Inc., has named Charlie Kirbow and Vin Milano to new positions in the Grumman Corporation subsidiary.

Charlie Kirbow has moved up from Executive Vice President to Senior Vice President of Grumman International, Inc., where he directs the marketing for new major Grumman airplane programs all over the world. He has been conducting talks and negotiations with Australia, Japan, the United Kingdom, and other friendly foreign nations, and last year he was busy in the early stages of negotiations with the government of Singapore for the new Grumman facility there.

At the age of 19 he began his Navy career as an apprentice seaman. He was a Hellcat and TBF pilot during World War II and earned a number of combat medals, including the DFC.

While he was in service he dug in hard and earned a BA at the University of Iowa, 1943, and a law degree from LaSalle University in Chicago, 1947. He was commissioned the same year and continued in the Navy until 1963, and later as legal officer for various commands. He stayed active in flying as chief pilot of a transport squadron. He has amassed nearly 13,000 hours as transport pilot and holds the highest FAA air transport rating.

Capitol service

Kirbow spent five years in the Navy's Office of Legislative Affairs and retired with the rank of commander.

In 1963 he became chief clerk of the Senate Armed Services Committee, responsible for procurement authorization and military construction legislation. He continued with the Committee for about six years, until he joined Grumman International in 1969.

A pilot, softball and tennis enthusiast, and bow and arrow hunter, he is pleased that two teen-age sons, Phillip and Chris, share his enjoyment of the out-of-doors. New focus of interest, indoors, is eight-week-old Eaddy Ruth, a little charmer. Kirbow and his wife, Dee, live in Huntington.

Charlie Kirbow
New post in G.I.I.

Heads administration

Vin Milano, who has been associated with Grumman International since July of 1969, is now Vice President for Administration and Business Operations. As executive assistant to G.I.I. President Tom Cheatham and assistant secretary of the Corporation, he has been responsible during the past year and a half for preparation and control of corporate budget, and for personnel and administration of the Grumman subsidiary.

Milano is a graduate of New York University in aero engineering and has taken graduate courses in mechanical engineering at Columbia. Last fall he attended the Advanced Management Program for Executives at Harvard.

Vin Milano
Named G.I.I. officer

From January '68 to July '69, he was director of Operations in Grumman Development, and from 1963 to '68, project engineer and then assistant manager of Advanced Aircraft Systems. His longest stretch in one department was from 1948 to 1963 in Weights Engineering, where he was preliminary design chief and assistant chief of the department.

The Milanos have three children and live in Roslyn Heights. Both Vin and his wife are keen on the New York theater. Milano fishes and bowls and is a past director and former chairman of the Long Island Chapter of the Society of Aeronautical Weight Engineers.

About the cover . . .

A new bird is subjected to many trials before it can go to the Fleet for operational service. This cover shot of the structural test hangar area in Plant 5 is an introduction to a vital phase of that world of testing, found on pages 6-7. Walt Hudson, supervisor in Presentations Services, captured this unusual scene.

Honored by NASA. **Senior Vice President Joe Gavin, director of Grumman Space Programs, last week received from Dr. George Low (R), acting administrator of NASA, the Distinguished Public Service Medal—one of only seven presented since NASA's inception in 1958.**

NASA honor to Gavin

In 12 years the National Aeronautics and Space Administration has honored six civilians with its Distinguished Public Service Medal. Senior Vice President Joe Gavin, director of Space Programs for Grumman Aerospace, is the seventh. He joins a select group of industrial leaders and scientists, including Dr. Charles S. Draper, Apollo guidance system expert at Massachusetts Institute of Technology; the late Lloyd Berkner, chairman of the board and treasurer of the National Academy of Science and Antarctic explorer; Dr. Frederick Seitz, physicist and former president, National Academy of Science, Dr. Charles H. Townes, expert on atomic energy, astronomy, lasers, and masers.

Gavin's citation reads in part: "As the leader and representative of the Lunar Module team at Grumman Aerospace Corporation, in recognition of the team's outstanding skill which made possible the successful use of the Lunar Module as a rescue vehicle for the safe return to earth of the Apollo 13 crew."

The ceremony of presentation took place at NASA's Manned Spacecraft Center in Houston.

Apollo 13 depended heavily on Grumman's Lunar Module 7 after an explosion in the Apollo 13 Service Module caused the abort of the mission. "The LM was perfect, and was performing twice the requirements of any previous module," said LM Pilot Fred Haise when he and Astronauts Jim Lovell and Jack Swigert visited Bethpage to thank Grumman.

Joe Gavin has been with Grumman since 1946. From 1957 to 1962 he was the director of the Lunar Module Program. His responsibilities broadened in 1968 when he became director of all Space Programs. He was named Vice President in 1962 and Senior Vice President in early 1970. He is a Director of Grumman Aerospace Corporation.

Systems safety article draws wide praise

Systems safety is getting to be more and more important in the design, construction, and flight testing of aerospace vehicles, so when Harry Arnzen's recent article on "Implementation of Prime and Subcontractor System Safety Engineering Programs" hit the papers it had a ready-made audience. And when the Flight Safety Foundation's newsletter carried a synopsis of it a few months back, more and more people requested copies. Harry, who works in Plant 36, says that he tries in the article to outline a program that would allow a company to "hack its systems safety responsibilities without setting up an empire by using the specialized skills of the people in the disciplines involved." For more, call Harry on Ext. 6347 or 87182.

Kordula 'Service' head

Al Kordula of Purchasing, Plant 30, elected acting commander of the Grumman Ex-Service Men's Club and Gene Wilson of Grumman Data Systems named hospital welfare chairman.

Name Merritt, Butler to top operational posts at Calverton

In an hour-long meeting with personnel of Plants 6, 7, and 8—"Plant six-seventy-eight," as Corky Meyer likes to call it—the new Senior Vice President of Aerospace announced a number of new appointments and re-alignment of responsibilities for operations at Calverton. In the large assemblage in Plant 6 on February 18, Tom Merritt was named director of all Calverton operations. Paul Butler was named a deputy director.

"The purpose of these changes," Corky explained, "is to provide overall plans for getting aircraft into prompt production and swiftly headed for testing and Fleet Service, or, in other words, to insure the success of our program commitments. We're a tightly knit organization producing planes the country greatly needs, and we must do it in a prompt and orderly manner."

Corporate policy decisions will still be made in Bethpage, Meyer emphasized, but the operational decisions ("many more and larger that before") will come from Calverton. Calverton, he said, will operate in similar fashion to Savannah and Stuart.

Meyer, who had just the day before been elected a Senior Vice President of Grumman Aerospace, is also a Director of the Corporation. He heads all Product Operations for Grumman Aerospace: Manufacturing, Quality Control, Aircraft and Spacecraft Acceptance Testing.

Wide experience

Tom Merritt had a long and varied career in the U.S. Marine Corps before coming to Grumman. He was not only a fighter pilot, but was also C.O. for the Aircraft Overhaul & Repair Facility at Cherry Point, having previously served as production manager there for three years. He's a graduate of the U.S. Naval War College and the U.S.M.C. Amphibious Warfare College, and he retired from the Marines with the rank of colonel.

In nearly three years with Grumman, Merritt has been an administrator and manager, first in his capacity as EA-6B Product Manufacturing manager and then as director of all Aircraft Product Manufacturing Managers. Last fall, after six months as general manager of the Savannah facility, he was named manager of the Calverton facility. His new title is "director of Calverton Operations."

New assignment

Paul Butler, 23 years with Grumman, including 12 in Flight Test, is leaving his assignment as manager of Operations for E-B Welding & Titanium Forming, Plant 2, to become Merritt's deputy at Calverton. He worked on the Mohawk Program in Business Development, spent two years in Government Flight Acceptance, and then became spacecraft director for LM-2. In 1968 he became deputy program manager for S/CAT and then went on Meyer's staff in 1970. Paul's immediate efforts in his new position will be concentrated on F-14 flight development work, capitalizing on his extensive background and expertise in this area.

Off and running. **Tom Merritt (L) has been named director of Calverton Operations and Paul Butler will be his deputy. Both are pilots with broad experience in program administration. (Photo by Gerry Costello)**

In addition to Merritt and Butler, Meyer announced the appointment of the following men for positions of responsibility at Calverton:

Al Kemp, a 23-year man and formerly Engineering representative on Vice President Ralph Tripp's staff (OAO, LM), now chief of Engineering at Calverton.

Joe Walker, who has been, since 1969, Product Manufacturing Program manager, now is in charge of all Calverton Manufacturing (Production, Machine Operations, Manufacturing Plans & Controls, Manufacturing Engineering).

Bob Saelzer, formerly assistant manager of Quality Engineering, now in charge of all Quality Control functions (Calibration Services, Quality Engineering, Receiving & Manufacturing Inspection) at Calverton.

Floyd Nugent, formerly Flight Acceptance Management & Staff, now in charge of Flight Acceptance Operations at Calverton (Lou Edwards' jurisdiction being on the Corporate level, covering all Grumman facilities).

Frank E. Tupper, who has represented the Product Support director at Calverton for the past seven years, will be in charge of all Product Support activities at Calverton.

Fred Luntz, formerly assigned to Calverton Sub-Contract work on a part-time basis, is now full time on Calverton Sub-Contracts.

Harry Luebbe, formerly manager of Governmnet Material Control, now in charge of all Material activities at Calverton, including Government Furnished Equipment and Purchasing.

All of the above people will be responsible to and report directly to Tom Merritt.

Meyer then opened the meeting to questions, with assistance in answering them from Vice President Tom Rozzi, as well as Augie Walsky and Jack McNamara, Assistants to the Chairman of Grumman Aerospace, Lew Evans.

Tom Merritt, speaking briefly, assured all employees that the Grumman "open-door policy" will always be in effect, that he was deeply interested in all ideas and suggestions that would improve the operations at Calverton, and that he would always be available, day or night, seven days per week.

On the way back

Forescasting "the start of a cyclical rebound" in Grumman business two years hence, Jack Rettaliata, Vice President of Grumman Corporation, outlined the state of the Company for the Denver Society of Security Analysts in a speech delivered at Denver, Colo., February 25. He looks for an upswing in Gulfstream II sales as economic conditions improve, and he said that the F-14A "will be one of our prime programs throughout the forseeable future."

Total Grumman sales in 1970, Rettaliata told the analysts, were down approximately 16% from a record volume in 1969, but net income after taxes was only 8% lower. The Corporation's backlog of government and commercial orders was approximately $1,034,000,000 at the end of 1970.

Rettaliata said the restructuring of the Company in 1969 was for the purpose of diversification, and he named the five subsidiaries: Grumman Aerospace, the largest, with the greatest share of responsibility; Grumman International; Grumman Ecosystems, a new company in January 1971; Grumman Data Systems, new in January 1970; and Grumman Allied Industries.

"Sales for the current year 1971, and for 1972 will be below the 1970 level," Rettaliata predicted. "However, we believe that 1973 will be the start of a cyclical rebound at which point Grumman will move back toward the $1 billion sales level. That belief," he added, "is based on our knowledge of projected Navy inventory requirements which should generate additional sales of our Intruder, Hawkeye, and Tomcat aircraft, and on potential sales of these planes to the Air Force and to friendly foreign governments."

Cope celebrating 'new' life

Back from California with an 18-year-old heart beating strongly in his 46-year-old chest, Richie Cope is celebrating every moment of a new life. His is one of 11 successful heart transplant operations performed by Dr. Nelson Shumway of Stanford University Hospital.

"If I can help anyone . . ." is Richie Cope's theme as he goes about his work. The ex-Marine, now back at his job in Machining Technical Services, Plant 6, after a long leave of absence, is one of today's modern miracles: a heart transplant. After battling a bad heart of his own through seven years and three operations and experiencing indescribable pain, he went hopefully to California late last summer to wait for a new heart. After two months a compatible one was donated, and "now I'm an 18-year-old with 46 years of experience," he says. He doesn't know the identity of the donor—just that he was a boy who had died of brain damage. The boy's parents made possible the life-giving transplant.

Cope has dodged the reporters who have wanted to write him up for popular magazines, but he welcomes a chance to describe his case through technical journals, and to speak to professional groups. He, beyond almost any other Grummanite, has cause to thank Grumman's Major Medical Plan for paying astronomical hospital and surgical bills. His fellow-heart-transplant patients have benefited by the generous donations of blood made by his co-workers.

A continuing schedule of exercise and diet is part of Richie Cope's daily routine, now that he's home. Once a week he goes to Brookhaven Memorial Hospital for X-rays and electrocardiograms and blood analysis, and once a month, to New York Hospital in Manhattan. Transmitted to Dr. Shumway's staff, the information warns of any developing irregularities or sign of rejection that must be promptly attended to.

Cope suggests that readers interested in becoming heart or kidney donors should write Medics Alert International, Turlock, Calif., 95380, or phone, **collect,** 209-634-4917, for forms and information. Or ask Richie Cope. "More donors are needed," he says. "It's a gift of life."

GDS opens New York office

Grumman Data Systems will open a marketing office in New York City during the week of March 15 at 100 Park Ave., sixth floor. Their leased space includes a reception area, conference room, five sales offices, and a remote job entry facility, including two computer terminals: the 2780 and 2741. These will be linked over telephone lines to the big IBM 360/67 and 360/75 at the new Grumman Data Systems Center.

Pat McGowan of Grumman Data Systems will manage the New York operation, heading Facilities Management Services. Members of Curt De Forest's Computer Services group will market Computer Services from this location.

Facilities Management Services is organized to offer a complete data processing operation for a company already committed to computerized systems. "The purpose of Facilities Management is to assume total responsibility for a customer's complete data processing function, including computer operation, systems design, and implementation," McGowan said last week. "This is a competitive field we're working in. We have the experience and the equipment to handle all types of jobs, from a small accounting application to large, sophisticated on-line, real-time systems."

"Computer Services is for those firms that have no computers but could profit from time-sharing on our equipment," De Forest said.

You can help solve the problem

Did you know that at least 65 bills on recycling waste materials await action in 25 state legislatures?

The reason is simple: each day each of us throws away 5.3 pounds of garbage. We will discard 8 pounds of garbage a day by 1980. Americans produce 3.5 billion tons of solid waste each year. Then we pay $4.5 billion a year to cart the stuff away.

Are there any solutions? Jack Shepherd, writing in Look magazine (11/17/70) has the following suggestions:

- Change our personal consumption habits. Reuse items. Vote for ecologically good products by buying them. Recycle what we buy.
- Composting. A lot of things around the house will decompose and fertilize the soil (including us). Make a compost heap. Encourage your sanitation district and/or city, town and village councils to develop a community compost. Organic garbage can be separated, composted and sold as organic fertilizer at a small charge to townsfolk, who may think you're an econut, but their gardens will grow joyously.
- Paper. Most paper products can be recycled. A good idea is to separate newspaper from other household garbage. A ton of newspapers recycled saves 17 trees.
- Glass. Buy returnable bottles. Publicize and patronize stores and firms that use returnable containers. Members of the Glass Container Manufacturers Institute, Inc. (330 Madison Ave., New York, N. Y. 10017) are buying back glass bottles, plus jars, in 25 states. Also contact the National Soft Drink Association (1128 16th St., NW, Washington, D.C. 20036) and tell them you want more deposit, returnable bottles. A deposit bottle is reused about 20 times. No return glass bottles are being recycled by the Midland Glass Company (P.O. Box 557, Cliffwood Ave., Cliffwood, N. J. 07721). Midland pays a penny a pound of glass.
- Metal. About ten percent of all cans are aluminum, a nearly indestructible form of litter. The Reynolds Metal Company (19 East 47 St., New York, N. Y. 10017) is recycling aluminum soft-drink and beer cans in Los Angeles, New York, Newark, Houston, San Francisco, the Northwest and Florida. It takes 16,000 kilowatt hours of electricity to make a ton of new aluminum. To recycle aluminum litter uses "considerably less" electricity, says Reynolds, which pays ten cents a pound (about one half cent a can).

Thanks to Emil Baralo of Operations Planning and Budgets, Plant 5, for forwarding us the above article from the L.I. Catholic.

And you?

Hermine Kelley of Vehicle Electronic Design Engineering, Plant 1, earned a set of Grumman drinking glasses for herself by submitting the You Said It question, "What are you doing personally to help solve the pollution problem?", carried at right.

It's a growing problem, and as Hermine says, "Besides trying to always pick up litter, I use lead-free gas, and, to reduce water pollution, I make sure that the detergents and other cleaning products I use are biodegradable and contain no phosphate or a minimal amount. I also try to influence my friends to use them."

What are you doing?

Should you have a question you think would be of general interest to Grummanites, send it to You Said It, Plane News, Plant 5. Those whose questions are accepted for use in Plane News will be awarded a set of Grumman glasses. (Photos by Marie Trimborn)

"What are you doing personally to help solve the pollution problem?"

Harvey Eckert
Environmental Test - 5

We've attended lectures at the Plainview School District on what to do about pollution. My family and I are very interested but there is very little an individual can do. One thing we've done is to switch to low phosphate cleansers and we never buy throwaway bottles. Everyone should stop buying them; they add to waste pollution.

Connie Haig
Adm. - 2

I am aware of the problem but I don't know what the average person can do. I keep a litter bag in the car so that I'm not a litter bug. I also use Ivory Soap and Amway products at home. And sometimes when I'm out and can't find a litter basket, I even put the empty pack of cigarettes or used tissue in my coat pocket until I find a basket.

Charlie Bosch
GDS Computing - 5

The biggest thing for an individual to do is not to use detergents. My wife switched to Ivory Soap and she also uses Amway products. We also keep a litter bag in the car for trash. I think the "clean-up day" we had last year was most effective. We helped pick up litter on streets, parks, and lawns. That was a good start towards making people aware of the pollution problem. We should do that again and soon.

William Lake
Thermodynamics - 25

I am doing nothing more than I would normally do. Though I am becoming more and more aware of the problem, I do think some of the warnings are overexaggerated. Suffolk County is doing quite a bit towards controlling the problem. The banning of certain detergents is just the beginning. When the problem becomes that serious the Government will pass laws that will prevent people from creating pollution.

Mary Lou Knox
Product Mfg. Budgets - 2

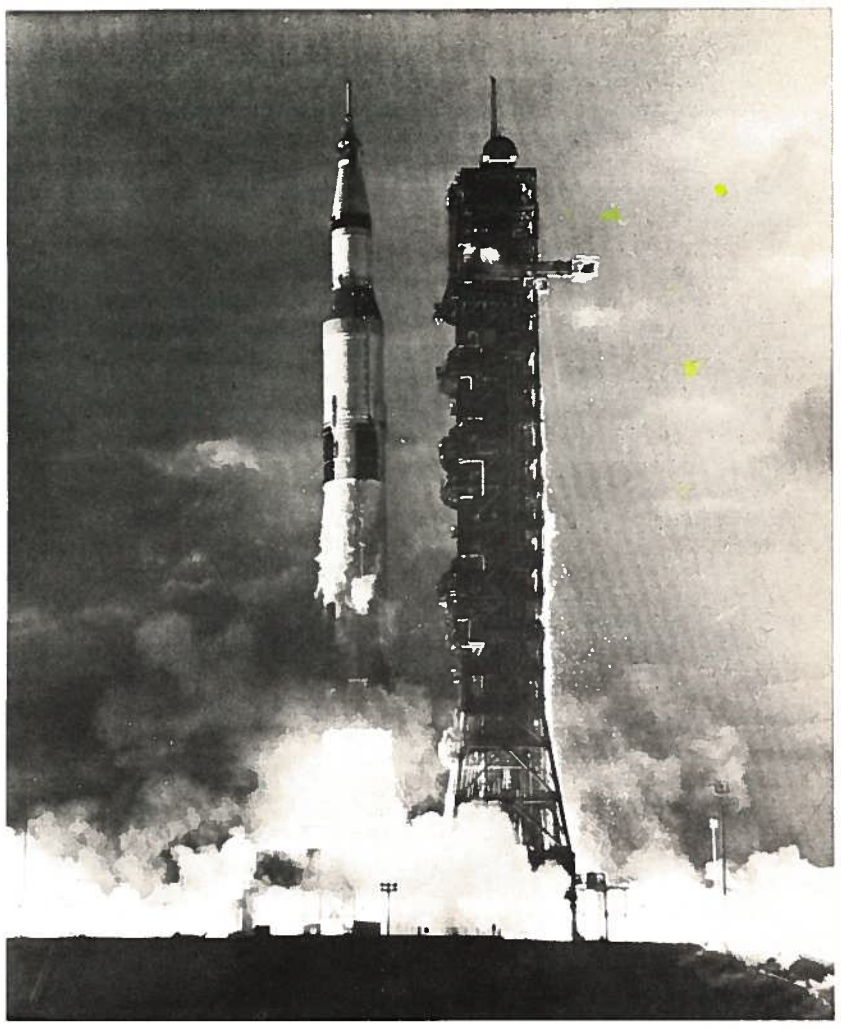
I am very aware of the problem and in a small way I am trying to do something. If everyone did something it would be a big help. I don't burn anything outdoors anymore and I try to keep my car in good shape to cut down on exhaust fumes. I even switched my soaps; I just bought a soap that is enzyme-free.

Carl Caravana
Conf. Data Mgmt. - 25

We're becoming more interested in it and we must do something about it. I stopped burning leaves; I now put them in those big bags for collection. I also buy lead-free gas for the car. My wife uses non-enzyme soaps and we keep any litter in the car till we reach a litter basket. We're all involved.

BOON!...

OR BOONDOGGLE?



"Why do we spend all that money to go to the moon just to bring back a bag of rocks?"

This question regarding the United States space program doesn't usually get an answer—at least a good one—because people are generally uninformed or misinformed as to the true goals and benefits involved, says Dr. Ralph Tripp, Vice President and Director of the LM Program.

Every good program, whether personal or national, needs a challenging goal, he feels. Achieving that goal is not the only benefit. More often than not the steps necessary to achieve the goal result in unexpected and unplanned benefits of considerable significance. So it is with the space program. Landing men on the moon was an historic event and a proper reason for national pride, but the 10 years of research, testing, development and study that made it possible yielded benefits in almost every profession, every business, and every country in the world. Never before has there been such a productive program with such a spectacular goal.

He cites "A Survey of the Practical Returns from Space Investment," a Congressional Report issued December 7, 1970.* This report, a valuable reference for those who would like to capitalize on some of the benefits of the space program, is also recommended reading for those who would like to be better informed on what they received for the tax dollars spent for this purpose.

Many advances

"It is sort of taken for granted, now," Tripp says, "that man can live and work in the space environment of a hard vacuum and no gravity. Ten years ago this was not obvious. The advances in medical equipment, techniques, and knowledge resulting from the last 10 years of study and research to verify man's capability in the space environment, have been phenomenal."

He gives these as examples:

- A number of hospitals use space medicine techniques of fastening measuring devices to patients; these devices make a recording in a central room where one person can continuously monitor the well-being of many patients continuously and efficiently.
- A study of radiation effects on cells to determine possible problems in space led to a discovery that suggests that an alteration in the molecular structure of the cell surface is what permits the uncontrolled proliferation characterizing cancer—which opens a new avenue for possible chemical control of cancer.
- A "glass sandwich" technology developed to eliminate windshield fogging has been used to develop a cradle-warmer system that monitors the condition of prematurely born infants and maintains the proper temperature within the laminated plastic bassinet.
- Strain gages and pressure gages have been developed that are small enough to be implanted in a person's blood stream by a hypodermic needle.

The temperatures of the surface of the moon vary from +265 degrees F on the sunlight side to -238 degrees F on the dark side. The astronauts' suits and the equipment used in space had to be designed to withstand this sort of environment. As a result, a considerable advance in lightweight thermal blankets, reflective paints, and insulation materials has been realized. For instance:

- A super-insulating, vacuum metalized nylon or taffeta that is heat reflective, yet porous and machine washable, is being adapted to bed covers, drapes, tents, and awnings.
- Aluminized plastic, half-a-thousandth-of-an-inch thick, is now being sold commercially for use in blankets. A full-sized blanket can be folded into a pocket-size container. These blankets can be used as stretchers, windbreakers, or water containers.
- A plastic has been developed that will resist 600 degrees F (1,000 degrees F for short periods).

Systems management

And though "crime in the streets" might seem to be a far cry from the space program, Tripp continues, the City of Los Angeles is using space programing techniques to help meet increasing demands on police, fire, and ambulance services. The new system provides rapid pinpointing of field forces, computer dispatching, automated status displays, computerized information files, individual communications for hazardous-duty personnel, and automatic transmission and signaling for emergency vehicles.

This example of the use of the managerial techniques developed and used by NASA to direct thousands of contracting firms and hundreds of thousands of scientists, engineers, and technicians, is only one of the many applications. It is too early to properly gage the effect these new management techniques may ultimately have in business and social affairs, Tripp says, though a listing of the benefits of the space program would fill many books. He suggests that individuals who are interested in some particular area should contact their Congressman or the "Office of Technology Utilization" in NASA. They'll find that the space program has been surprisingly productive!

"In this day and age, research and development, such as provided by space exploration, is basic to our national health and progress," Ralph Tripp states. "To refuse to accept this challenge now would be as futile and shortsighted as it would have been for the people of the 'thirteen colonies' to refuse to expand their knowledge and exploration of the new land they inhabited."

*"For the Benefit of All Mankind, a Survey of the Practical Returns from Space Investment"— National House of Representatives Report No. 91-1673, 91st Congress, 2nd Session, 1970. For sale by the Superintendent of Documents, U.S. Printing Office, Washington, D. C. 20402. Price, 30 cents.

Mallins, Calverton inspector, earns $500 award

Joe Mallins of Electronics Inspection, Plant 7, went looking for trouble and found it. Now he has a $500 Savings Bond, presented to him by Employee Suggestions, as a memento of the money he was able to save the Company. Seems he found an optical sensor platform harness wiring error when he went looking for the reason an expensive TV tube had failed. Harness corrections were made and there is reason to think other TV camera tubes will not fail in the future.

An award of $450 will be divided among three: Henry Miller and Frank Rath of Tool Fabrication and Walter Alber Jr. of Tool Fabrication Control, all Plant 6. Jig fixtures that stand outside in the weather for storage formerly required many hours of surveillance and much time spent on cleaning and painting. Suggesters recommend Paralketone ILO preservation paint, easily applied to jigs regardless of the state they are in. It's quickly removed by a steam jenny, and the saving, in cleaning and painting, runs into many thousands of dollars.

John Peper of Flight Avionics, Plant 8, pocketed $425 in bonds. His suggestion: a male and female type of tool to straighten out distorted coupler/wave guide flanges on an aircraft.

Woops! Sometimes the first are last . . .

Woops! When you've been at Grumman for 20 years it must be a little disconcerting to be left off the anniversary roster. That's what happened last month when the list of people shown below didn't even get mentioned.

Sorry. That just proves that we can't all be perfect.

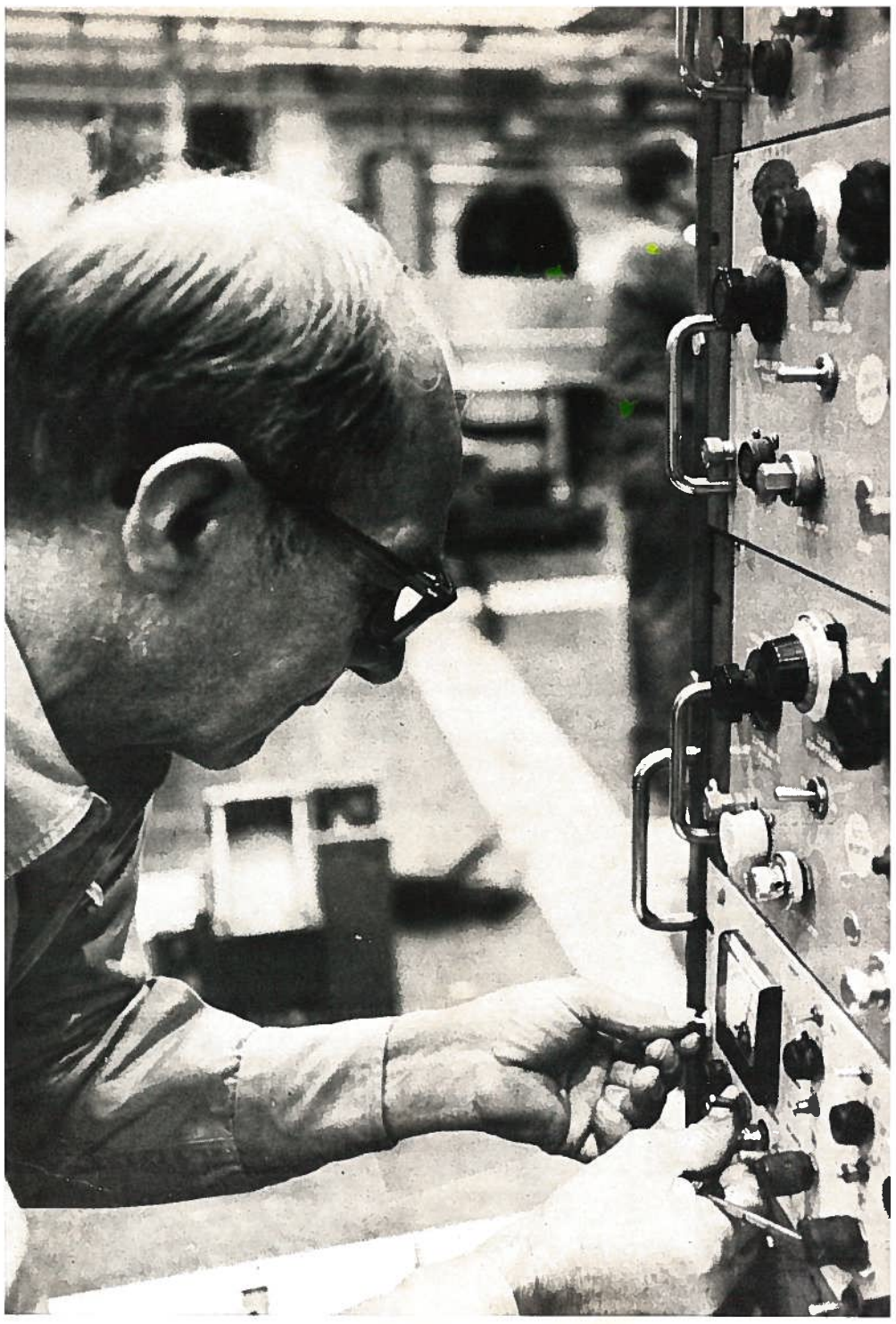
PLANT 1: Alexander J. Brizenski, Prototype; Louis J. Napolitano, Fuselage Forward Sub & Majors; Bernard J. Picone and Raymond E. Jeffrey, Pre Flight Final/Systems Installation; Arthur W. Mac Millan, Instrumentation Planning; Jack Brandi, Production Control - Parts Control; Carl F. Caruso, Environmental Control Design; Gene J. Pinelli, Fluid Power.

PLANT 2: Karl W. Herrnkind, Press; Otto Felser, Cadmium Plate; Joseph Anziano, Steel Parts Assembly; Wesley C. Van Dyke, Hydraulics; Charles S. Maciarz, E-B Welding; Jerry J. Swihun, Machine Shop.

Flower Show plans

The Grumman Garden Forum looks different this year, beginning with the director, Kay Zuk of Employee Services Offices. Only three shows will be held, Kay announces, beginning May 12 with the Tulip, Narcissus, and Lilac display. Sue Zamparelle is show manager. Some special prizes — gift certificates and Flight Shop items—are being offered.

FOR A NEW BIRD, IT'S A WORLD OF TESTING



"It's a world of tests . . . or setting up for tests . . . literally thousands of tests. . . ."

So says Ken Lee, supervisor on the F-14 test program in Plant 5 and a man who's been active on "both sides of the fence," shop and engineering. His depth of knowledge and long experience with Grumman aircraft put him in fine position to assess—and aid—the progress of the F-14. So how does he look upon the new bird? He says:

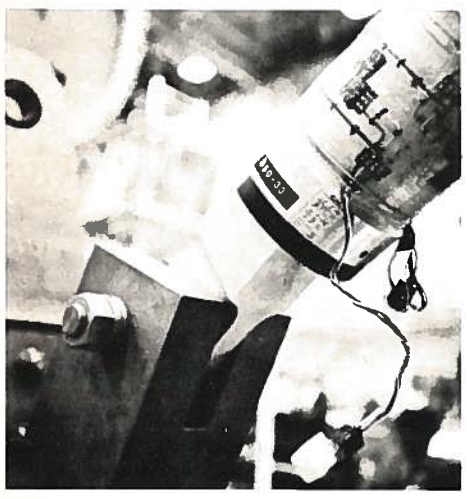
"It's a beautiful airplane"—the exact words used by Jim Conlan, night foreman of Plant 5 static test lab. To find a dissenter to that view would be difficult indeed.

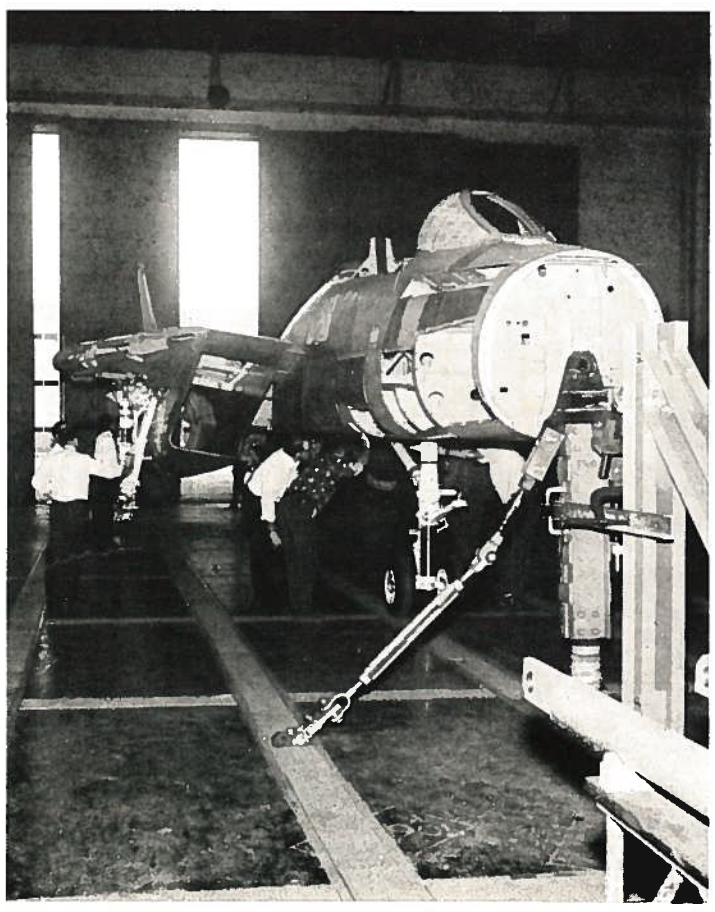
Conlan even goes further, remarking that "You get a feeling about an aircraft, and I've been in on this one from the start of the original mockup here in Plant 5. It looks as though it's doing Mach 2 just sitting there!"

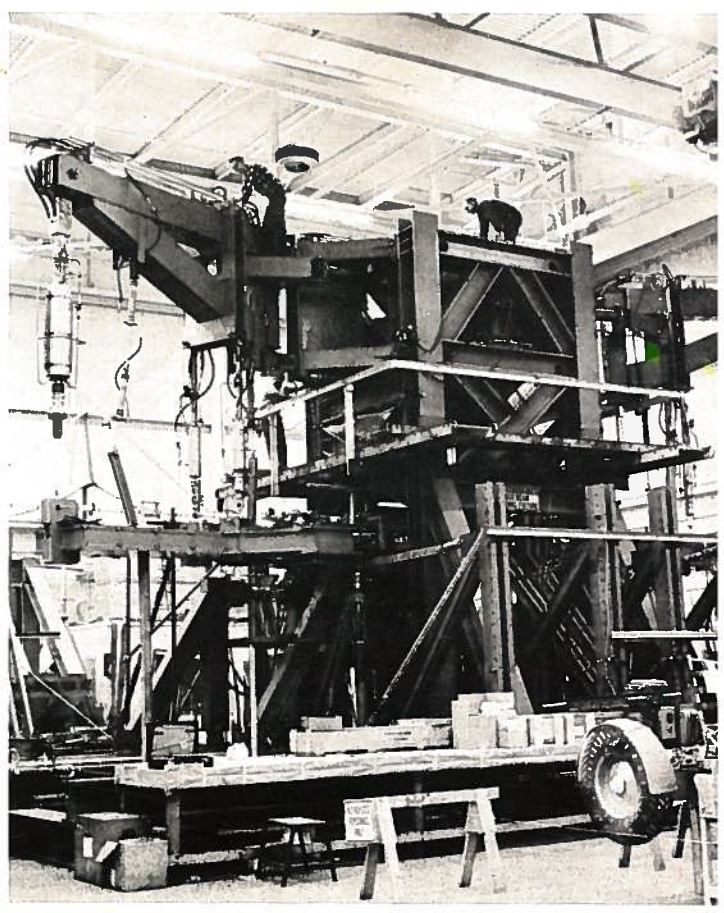
He was looking at the S-1, the static test vehicle that's been on the shop floor for about four or five months now and in a test series that's scheduled to establish suitability of structure by this year. And sitting next to S-1 is S-2, delivered February 26 and being readied for drop tests that are to be conducted this summer.

"This is the first time that we've had two static-test vehicles for the same aircraft," says John Coe, manager of Engineering Test. "By having two vehicles in testing at the same time, we'll be able to compress the test schedule. It's all part of getting to BIS (Board of Inspection and Survey) in half the time."

To do that, a lot more than S-1 and S-2 is involved. On the balcony overlooking those static vehicles, is a new analog/digital computer systems arrangement to support the static tests; on the south side of the floor is a canopy stuffed with styrofoam and 40 rubber bags filled with air; and, a large leap away, in Plant 31, is a huge, multi-ton metal monster fashioned by Grumman specifically to test the wing center section box beam, **the** critical structure on the fuselage. Then, in late summer, the fatigue test vehicle will be in the area where the canopy is today.







(Photo at right by Jim Wagner, second right by Nat Scherer, all others by Fred Annette)

All of these will be undergoing many, many tests; and Ken Lee's remark about the number of tests has to be correct. In fact, tests have been going on for more than three years.

Over all, the testing can be looked at as a three-pronged package: static, fatigue, and drop tests. The metal monster at Plant 31 is part of the fatigue testing work; the canopy test is a loner, something apart from the others, though it could be placed in the fatigue-test category.

Simple concepts

The concepts are simple, all designed to test the integrity of the aircraft structure: static test amount to placing loads at many different points and increasing the loads in determined, measured increments (like carrying increasingly heavy packages as you ascend a ladder); fatigue tests try to measure the anticipated life-cycle of the primary structure under repeated loads (like the distance runner as opposed to a sprinter); and drop tests are done to find out—again on a stepladder-like basis—at which point the full package "falls apart," in a functional sense. One of the two static test articles and the fatigue test plane will be drop tested.

Looking at it in another way, there is a need to know that the F-14 has a margin of strength 50 percent higher than the loads that it will encounter. In fatigue tests, emphasis is on workmanship and attention to design detail because small defects can reduce aircraft life significantly. The Navy requires testing to twice the life of all airplanes to account for variations between aircraft of identical models.

The test engineer has the job of finding out what can be proved on what sort of specimen. He's in charge of planning, scheduling, arranging for application of loads and strains, monitoring construction, conducting tests, and writing reports on findings. And he needs people in related skill areas to help him.

'Read' loads

Every loading, its magnitude, and its location on the S-1 and S-2, has to be exact. And as those thousands of loads are put on the test article, the readings are recorded by the new analog and digital data system on the "balcony." Gene Goltz, section chief in Ground Test instrumentation, spells out the basic system:

"The analog section provides us with the continuous records required for drop tests; the digital section displays engineering data in real time from static and fatigue tests. From the projected data trends, a test engineer can proceed with confidence or stop the test. The data records at the end of the test are suitable for inclusion in the test engineer's report."

"The beauty of the complete system, in addition to getting precise readings in real-time data flow, is that you're able to support two major tests and set up for a third all at the same time," comments Rich Romaneck, system operations manager. "And by pulling out and putting in patchboards you can flip from one test to another very quickly."

Jim Minicozzi, system design manager, also pointed out that the system can handle 400 analog and 1,800 digital inputs—an enormous amount of real-time data. "It's really new generation equipment. For example, conventional calibration techniques aren't used; checkouts are made through transducers in a matter of seconds instead of the hours and hours it used to require.

"It's a great system that's going to assure accuracy and save lots of time and money. And let me tell you, we wouldn't be set up and ready to go, as we are, if it hadn't been for the Facilities crew: They did an outstanding job!"

On the plant floor the job is to put on the exact loads (the ones that'll be read out on the computer systems). Since F-14 is a variable-sweep wing rather than a fixed-wing aircraft, loading becomes a tedious, exacting, "many splendored" activity. Each critical load is multiplied several times over that of a fixed-wing plane, simply because F-14 is a variable sweep-wing plane. (And, as a fighter that must take evasive actions quickly, its loads are heavier.) So seven positions of sweep must be tested—25, 30, 35, 45, 50, 55, and 68 degrees—and simulated as various flight situations, such as banking, diving, and rolling over.

More tests

And then you go to fatigue tests—for a very good reason, as explained by Dick Grigat, who heads up fatigue testing for the F-14:

"It's very possible that Cliff Stahl's static-test guys could spot a problem in the structure, but we'd find an entirely different type problem in a different part of the test article. So **both** static and fatigue tests are necessary. Naturally, you expect, in either case, that the problem's not a big one, not one that will call for a major redesign.

"At the same time, though, it's much better to find and correct problems at the static and fatigue-test stages than later when the plane's in flight. So you test, test, test, and test some more, because **that aircraft has to be right all the way.**"

Doing that calls for some special facilities and highly skilled people devoted to the job. On the shop floor, foreman Mike Muller (and his counterpart on nights, Jim Conlan), say there's great pride in workmanship. "We're self-sufficient," says Muller. "We'll tackle anything: cutting, drilling, sawing, you name it. We've got the best mechanics in Plant 5. Nobody can top 'em."

Part of the reason for that high excellence, says Conlan, is that "We've learned to work together closely as a real team over the years. Our guys are the 'dependables,' the ones who can do just about anything on the shop floor."

Corroborating testimony flows in from lots of people: Jim Jack, assistant lead man on S-1; George Milione, who's lead man on S-2; Ernie Kannig, who handles 1, 2, and the fatigue article; and Frank Sacca, mechanic, who's to be key man on the fatigue test (after he's done stuffing the canopy for pressure and temperature tests that are pushed to failure). Perhaps the best statement of the area's work style came from Jack: "Each of us goes to where the need is at the time. When everybody does that, you've got to have a good, capable team that worries only about getting the job done."

The same sort of attitude prevails in Plant 31, where the metal monster dominates the scene. "We had quite a time building that thing," says Walt Wermter, director for the wing center

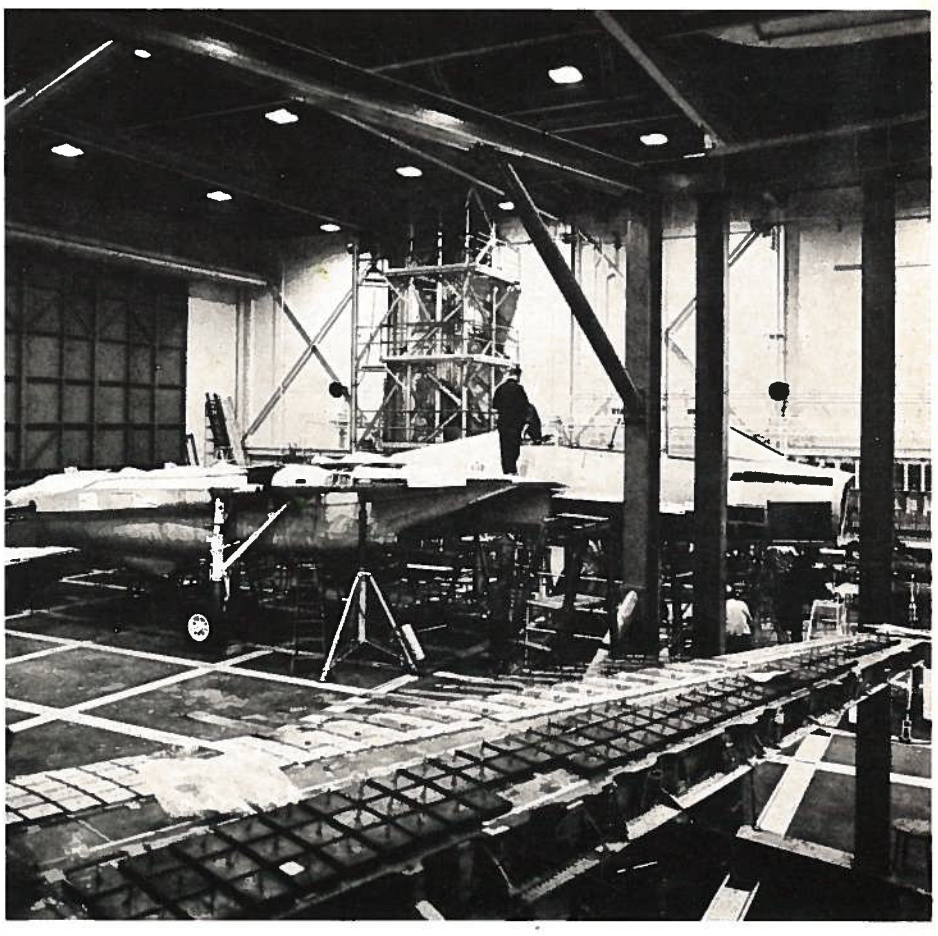
section box-beam fatigue tests. "Wally Wenchel and I, with a flock of other people, started to make it about a year ago. As far as we know it's unique—and we built it in such a way that all 60-or-more tons of it can be dismantled easily and shipped to another area. So it's not an unmovable beast."

"It's designed to test the sturdiness of the box beam under assorted swing loads, simulating the life history of the F-14. It's set for twice design life (12,000 flight hours) in all sweep ranges."

Present plans call for all testing to be accomplished in just 10 weeks.

Looking at "the whole ball of wax"—a tough thing to do because the ball's so large **and** is enlarging—some thoughts seem to come through clearly: Despite typical complaints about paperwork barriers, S-1 is progressing smoothly, instrumentation and 31's metal monster are on the close edge of readiness, canopy stuffing is in full swing, S-2 is in build-up phase, and writing the test plans for the fatigue tests is well in hand. In short, there's a lot of work, but all is well.

And soon will come the drop tests. And in many plants the throb of production goes on . . . and at Calverton, the action of the test flights. And testing will go on, and on, to make certain that F-14 will be the Navy's—and the world's—finest air superiority fighter.



GAA membership 'bargain' ticket to year-round activity slate

If someone sidles up to you and whispers, "Sports, clubs, tours, all sorts of shows," how does your mental machinery respond? If you're an aware Grummanite, why it's automatic: GAA, the Grumman Athletic Association. What else?

In fact, for some 30 years, those three letters, GAA, have possessed a Midas touch. They've swung wide the gates of fun and relaxation for anyone at Grumman . . . and all for only $1 a year.

No matter how you look at it—as the smallest amount for the biggest bang, as the only stable dollar still in captivity (the $1 price has been constant), or as (Perish the thought!) a contribution so small that it won't unbalance your budget—it's a damn good investment.

Not only that, if you're one of the 65 lucky ones who has a winning ticket stub at the drawing to be held April 5, you could win one of 15 Panasonic portable combination AM/FM cassette tape recorders, or one of 50 sets of Grumman glasses.

It's as easy as that, and so painless. So ante up a buck now in the midst of GAA's annual fund drive—which by the way, seems to be off to a good start.

"It's a little early to see a trend because the drive just began," says Mike Cherry, who's heading the fund effort, "but I can't see any reason why support shouldn't be as good as in other years. It might even be better than before because there are more activities sponsored by GAA."

Mike's right. There's a long list of GAA-approved clubs, for example, and for your convenience, these have been listed below, along with the names and extension numbers of those you may contact if you're interested in the activity. Could other clubs be formed under the GAA banner? Sure, as long as they get the blessing of GAA.

Quite often GAA also lends a hand in helping to supply equipment to intramural sports groups, or in arranging for facilities. The wide scope of GAA's effort might surprise you:

- Hobby, art, photography, and flower shows
- Intramural basketball, softball, golf, pocket billiards, tennis, bowling, etc.
- Cut-rate prices for professional ball games and foreign flights
- Lunch-time activities, such as ping pong, horseshoes and handball.

The list can be as long as the range of legitimate recreational in-house interests . . . and that's quite a potential range.

There's another point that deserves attention. As Cherry says, "When anyone gives a dollar to join the GAA drive he can be sure that the money is spent only on intramural activities. Not a cent of it ever goes to Grumman varsity teams. They're Company supported."

And when you get right down to it, the dollar-a-year donations to GAA don't make GAA a self-sustaining operation financially. The Company chips in to keep the boat afloat.

So GAA's asking you do help a bit in an effort that helps all of us. And if you have any questions about the drive or GAA itself, just call 'em. They're on Ext. 2133.

Prize package. **Carol Lyons of Product Development, Plant 5, displays attractive Panasonic combination AM/FM radio-tape recorder, one of 15 offered by GAA in prize drawing.**

GAA club list

There are a number of recreational activities at Grumman, enough, probably, to satisfy most leisure-time interests. Here's a list supplied by the Grumman Athletic Association, with personal contacts and telephone extensions, should you care to make further inquiries. And if you have a special hobby that's not listed with GAA, call Ext. 2133 or 2269, and see about the possibility of starting up a club yourself.

Activity	Contact	Ext.
Antique & Sports Car Club	Ed Wick	87334
Aquatic Club	Lynn MacDonald	1509
Astronomical Society	Ed Anderson	7044
Campers Club	Frank Krieger	1702
Chess Club	Alex Ikonnikow	7592
Coin Club (Bethpage)	Sid Wayne	9976
(Calverton)	Dick Rate	57-201
Duplicate Bridge Club	Pete Harrington	1805
Engineering Model Society	Harvey Knopf	7944
Ex-Service Men's Club	Al Kordula	87259
Fencing Club	Joe Campisi	1134
Flying Club	Carl Echols	6411
Garden Forum	Kay Zuk	3393
Horseback Riding Club	Caren Carlson	2725
Over Forty Club	Frank Mistretta	3630
Amateur Radio Club	Emmett Goodman	87125
Rod & Gun Club	Walt Schillinger	57-617
Gophers Rifle Club	Hank Womble	1477
Ski Club	Lee Badalamenti	2171
Stamp Club (Bethpage)	Marty Harow	9172
Toastmasters' Club	Tom Campbell	3157
Weight Watchers Club	Lee Badalamenti	2171
Pure Bred Dog Club	Tom Williamsen	3076

Leave 'em laughing. **It was a rare opportunity when the entire Grumman billiards loop got together recently, so somebody captured it for posterity. They're all laughing because the championship hasn't been decided yet.**

Lango, Massey head for shootout

There are some interesting duels developing in the second annual Grumman pocket billiards league that got under way January 6. After nine sessions at the House of Lords in Plainview, Ken Lango and George Massey look like they're headed for a shootout for the A division title, while John Dick holds an 83-point lead and is rapidly disappearing from the rest of his B division mates.

In team play, George Barnes and George Papini are in first with 1458, but Joe Stecewycz and Charles Friedrich, who have 1410 points, look like they'll make it a contest.

In all, there are 24 contestants in the league.

Womble leads Gophers to rifle loop win

In a recent South Shore Rifle League match, the Grumman Gophers scored a close 965-961 victory over the Tampa rifle club. Hank Womble of F-14 VEDE, Plant 1, fired an outstanding 198 out of a possible 200 to secure the victory.

Supporting Womble were George Hilton, who fired 196, Bob Lang, 195, Dick Imgram, 189, and Ed Brandis, 187.

And in Industrial league action, the Gophers won another, this time over Republic, 771-686. High scoring Gophers were Womble, 196, Hilton, 193, Lang, 191, and Al Burns, 191.

•

Chuck Pierce outdueled Fred Kropp to take first place in recent horseshoe competition at Plant 55, Savannah. Kropp, however, teamed with Ken Chrysler to turn back Jim Joyce and Fred Callen to win the doubles title.

Warmup

Dave Evans rolled 235-634 to pace a Grumman win in the Sperry pin jambore two weeks ago. Grumman amassed 10,626 pins—the total included the entire 10-man and 10-woman varsity squads—for the three game set to wallop runner-up Pan Am by more than 700 sticks. Sperry finished third with 9,-832 and LILCO fourth with 9,-807 in the 16-team field.

Other high rollers for Grumman were Jack Nielsen, 205-224-600; Bruce Karen, 214-587; Mike Greggo, 225-212-625; Chin Thompson, 202-567; Bertha Siegl, 561; and Bella Miglio, 200-556.

Gabriel's 257-669 sparks surge by Shadows

Though he probably abhors the mention of horn-blowing, Ed Gabriel has something to toot about. He and Steve Cominski have been having their own private war (a fun thing, of course) in the Babylon Mixed loop, and until recently, Ed was coming out of those engagements a little scarred.

That was until recently. But in the last couple of weeks, the crew-cut southpaw from Data Systems has been getting stronger in his bid for individual laurels. Recently, Gabriel hit a 257 to tie Cominski and Pete Jordan for the league's high game. He followed that up just two sessions ago with another 257, added a 220, and closed at 669, only 15 sticks off Steve Cominski's series record.

The big breakout also powered the Shadows to high series and game marks of 751 (Pat Sabatelli's 202 helped) and 2072, as Gabriel's team moved past Cominski's Unpredictables to take over first in the league standings. The season ain't over yet, so there's sure to be some interesting duels between the two in the future. Other highlights at Babylon included T. C. McClee's 226-211-582, Lee Grey's 202-572, Ella McMillan's 495, and Pat Sabelli's 488.

In the Lunar league, the Supers are demanding a recount. Steve Focardi rolled 234-612, Sam Avati hit 569, and Bob Boisits finished at 551. All they did was lose 11 points to the Grumlins—a washout. They went into the round in second, just three points away from the Cue-Sees. Now they're looking at the top from third, 11 points out. Console yourselves, fellas; it might have been worse.

A bowling season seems to stretch out forever when your team is in last place, with little hope of rising much higher. So maybe Jack Nielsen feels a little better these days. His Lucky Strikes are dead last in the Black loop, but he brightened up the scene recently by rolling 214-246-643 to outdistance Lee Maggio's 215-205-599 for weekly honors. Other high spots included Vic Matuza's 220-584, Ted Dija's 207-580, and Joe Russo's 204-212-570.

In the Masters loop, Ed Hilbert's 225-243-851 led the scoring, while George Ulrich punched out 223-763. . . . Harry Burkhardt and Clarence Campbell showed well in the Classified loop, with Burkhardt's 202-214-607 edging Campbell's 224-201-597 for evening laurels. In the spotlight were Ed Meaney, 202-583, John Donovan, 204-582, and Bob Dudonis, 233-574. Earlier, Frank Azzarello signed in with 215-594, Sam Dedora, 232-589, and Oscar Peters, 201-564.

"Gotcha!"—or maybe words to that effect—probably best expressed how the Good Friends felt when they finally caught up with Doing Our Thing at the top of the Patchogue Mixed, ladder. How long it will last is anybody's guess, but the Good Friends can salaam to Maggie Gaynor for her 202-537 in the head-to-head whitewash they applied to Doing Our Thing. Other headliners: Dave Struller, 220-539; Marty Larcombe, 202-537; Virginia Geer, 498. Earlier, Gene Burgess hit 200-582, Struller finished with 202-560, and Maggie closed with 510.

Dom Martino made the big noise in the Aerospace loop as he climbed to 643 on lines of 237, 204, and 202, in action marked by Tony Missale's 238-605 and Joe Acquilino's 208-580. Missale nudged into the limelight the following session with 225-226-624, while Dick Corrigan, who holds the loop record of 657, came in with 210-212-616. . . . Nite Owl luminaries include John Harms, 200-207; Dick Brutkiewicz, 225; Gene Piwowar, 222; Lou Sanfilippo, 237; Walt Cooper, 225; and Harms (again), 218.

A couple of guys in the Trader league have been flirting with 600, but not one of them has bothered to bend over and pick up the lady's glove. Bill Wright came closest; he stopped at 599 after 214 and 206. Al Stevens hit 232 but ran into a roadblock at 597, and Ben Picone sizzled for awhile; he had 232 and 233, but 595 was the extent of his assault. Others in the action were Jim Rose, 212-205-580; San Santangelo, 234; Mickey Rooney, 223; and Frank Nelson, 225.

Spoilers clinch in hoop sweep

It didn't take long, just two games. And it got easier, too. That about tells the story of the Spoiler-Transportation playoff series for the championship of the Wednesday night basketball loop.

The teams finished one-two in the league, so the Spoilers, in deference to their rank, should have been favorites. In the first game, the Transportation Road Runners made it a contest before succumbing, 81-77. Bob Scully led all the scorers in that one with 36 points although his team came up short.

In the next encounter, the Spoilers practically blew the Road Runners off the court as they finished their opponents, 101-62. Frank Quarto paced the win with 28 points, with Ron Bartlett scoring 23 and Jim Cruthers, 19. Scully collected 18 for the losers.

If there's any sort of award for coming back from a mortal encounter, the Druids of the Grumman basketball league should qualify. True enough, nobody did die, but when you get beaten 126-49, that could be considered a slaughter. And recovering from such an encounter to go on and win your next game is quite an accomplishment.

Those big, bad Newcomers committed the dastardly deed by socking the Druids, 126-49, to run their record to 10-0 in the loop. Bob Scully and Lee Gendron led the winners with 37 and 33 points, respectively, while Jim Cruthers had 23. Bruce Driver had 16 for the Druids.

Five days later, the Druids edged the Supporters, 66-64, on the road back to recovery. Driver paced the win, the second of the season for the Druids, as he scored 22 points.

Berka on target

With Al Berka firing a 284, the Grumman D pistol team chalked up another win in the L.I. Industrial league recently, this one a 1044-1012 victory over the Grumman A team.

Other D high scorers were Greg Criscione, 264, Art McKee, 258, and Ed Bennett, 238.

Plan women's, men's net play; opening round set for April 3

Though there hasn't been one for many, many years, the Grumman Athletic Association will sponsor a company-wide tennis tourney at Bethpage State Park this spring. Hopefully, the tournament will help promote renewed interest in the sport at Grumman. In addition, Fred Hermann, captain of the varsity tennis squad, announced that the tournament will be used as a basis for selection of the 1971 squad to be entered in the L.I. Industrial league. Because the results will be a factor in team selection, he encourages all past varsity members, and all those who aspire to that status, to sign up,

Play is tentatively scheduled for Bethpage State Park, but should other courts be more agreeable to contestants, play can be switched to a different location by agreement of contestants.

Competition in the elimination-type tournament, best two-out-of-three sets, will include men's and women's singles and doubles, and is scheduled to start Saturday, April 3.

Trophies for winners and runners-up will be awarded by GAA and the recreation department will also supply tennis balls used in the tournament.

Deadline for entering is Friday, March 26. For additional information, call Mitch Rosenbaum, Ext. 9548, or Fred Hermann, Ext. 3573 or 84126.

Tennis tourney entry

Singles

Men's ..... Women's .....

Name ..... Perm. No. .....

Plant ..... Dept. ..... Phone Ext. .....

Home Address ..... Phone .....

Doubles

Partner's Name ..... Perm. No. .....

Plant ..... Dept. ..... Phone Ext. .....

Home Address ..... Phone .....

Entry Deadline Friday, March 26
(Forward to GAA Office, Plant 28B)

Hilbert's 633 paces pin team

Steve Zgutowitz of Aerospace UOP and Ed Hilbert of Grumman are the big reasons why their teams are standing 1-2 after the first round of play in the L.I. Industrial tournament. Zgutowitz registered the highest individual game and series in the opening round as he forged 637 on 206 and 246 games, while Hilbert closed just shy of those marks with 245-200-633.

Aerospace, by jumping into the lead at Mid Isle Lanes in Hempstead, surprised the rest of the 16-team field. The leader (formerly called REF) began with a modest 911, jumped to 1012 in the second game, and closed at 999 for a 2,922 total. Grumman, 101 pins back of Aerospace, had lines of 901, 965, and 955.

Rounding out the first five are Republic, 2,754; LILCO, 2,740; and AMF, 2,702. Last year's champion, Kollsman, is ninth with 2,609.

Contributing to the Grumman total besides Ed Hilbert, captain of this year's squad, were: Jack Nielsen, 559; Frank Tucholski, 555; Bruce Karen, 554; and Mike Greggo, 532.

Competition in the 30th annual L.I. Industrial tourney resumes next Saturday, March 13, at Mid Isle Lanes, starting at 8 p.m.

Riders Wanted

ISLIP: Bay Shore area to Bethpage plts., 7-4 p.m., air cond. JU 1-7826.

ST. JAMES: Smithtown, etc. to Plt. 2 & 3, 7:30-4 p.m., N. State, LIE, or 25. 862-9099.

Car Pool

ELMHURST: Queens to Plt. 4 via L.I.E. or Northern State, 8 a.m. shift. 212 592-4142.

BRONX: From Plts. 14, 15, 30 or 35. M. Danin, Ext. 86241.

WHITESTONE: & Throgs Neck Bridges, 212 423-4097.

BKLYN.: Belt Pkwy. to Plt. 30, 8:30-5 p.m. 212 CL 6-0413.

For Rent

APT.: Uniondale, 3 rm., no pets, couple, $185/mo. IV 6-7605, after 5.

ROOM: Hicksville, furn., semi pvt. bath, male only. WE 1-9669.

ROOM: Nr. Grumman, gent. only, $25/wk. WE 1-0691.

ROOM: W/pvt. fam., 2 mi. from Grumman. WE 5-2466.

APT.: 3 lrg. rms., furn., all util., Locust Valley, nr. bch., $195. 671-0517.

ROOM: W/wo board, Holtsville/Farmingville area. 732-1059 after 6.

ROOM: Furn., bd. opt., gent. pref., nr. trans. 643-6332.

ROOM: Furn., pvt. bath & ent., nr. Grumman. WE 5-5012, after 6.

SKI LODGE: Weston, Vt., 3 bdrm., nr. Magic, Okemo, Bromley, Stratton, 5 day wk. spec., wk. ends, avail. off season. 212 291-4891.

HOUSEKEEP. COTTAGE: Loon Lake, Adirondack Mts., swim., fish., & boat., pvt. bch., $55 to $75/wk. 212 268-6536.

ROOM: Vic. of Hicksville, Bethpage, share bath, gent. only, $25/wk. 931-2044.

HOUSE: Port Washington, fully furn. & equip. 4 bdrm., 2 bath, month of April, $350. PO 7-5138.

Wanted

TANKS: 2 Johnson or Evinrude 6 gal., gd. cond. 277-1313.

FORD: Or Merc., '64 & up, gd. run. cond. AT 6-0279.

HOUSE: Vic. W. Suffolk to E. Nassau, sma. 2 bdrm. to rent, under $170/mo., Mar./Apr. occup. 598-2247, after 5.

UNIFORMS: U.S. Navy ofcr., khaki, blues or grns., jack. sz. 40 lg., pants, 33-33. MO 7-1426.

TERRIER: Fem. ped. wirehair fox for male w.h.f.t., AKC. fam. of 11 champ., 456-1258, bet. 9-6 p.m.

PARTS: For '68 VW, pass. seat, l.h. dr. MO 9-1882.

HOUSE: Or apt., 3 bdrm., to rent, furn. or unfurn., Huntington area, 4/1 to 6/30. 367-4852.

APT.: 1 or 2 bdrm., Nassau or Suffolk. HA 1-9426.

APT.: 3-3½ rm., for yg. work. couple, May or June occup. 669-8537.

ARM SAW: 10 in. DeWalt radial, mod. 1400 or 1450, gd. cond. 735-0680.

DECOYS: Old ducks, snipe, geese. 589-6187.

DIAL INDICATOR: "Last Word" or equiv. 549-8927.

PROP.: 14x9 r. hand, buy or trade. 231-6754.

SHOP MANUAL: '66 Chevrolet. 667-7931.

METAL CAB.: File, or w/shelves, gd. cond., reason. SU 5-5975.

MISC.: People interested in obtain. at least 10% discount on Heathkit solid state color TV, 23 or 25 in., quan. mail order purchase. 921-1887.

DRILL PRESS: W/wo motor, gd. cond., reason. AN 5-5118.

SHOP MANUAL: '61-'62 Buick Spec., or '61-'62 F-85 Olds. JU 5-8992.

Adoption

CAT: B&w part Persian, fem., 3 yr., spayed, all shots, house bkn. 796-8288.

PUPPIES: Mini collie-shep., fem. only, rdy. 3/15. 691-0313.

CATS: Five: orange tiger, male, alter.; fem., 2 yr., gray tiger; fem., grey & wh., 10 mo.; fem., grey, 9 mo., xtra toes on forepaws; buff male tiger, 6 mo., housebkn., some have had shots. 423-3967.

Lost

ELK RING: Man's, w/dia. stone. CH 9-0626.

Swap

ALBUMS: Classical & vocal records, for pop. records from 1900-1940. CH 9-4557, after 5.

For Sale

CHEVY: Impala, '68 SS, V-8 convertible, excel. cond. auto trans., pwr steer., vinyl bucket seats, R&H, w-w, orig. owner, $1,600. 587-8353.

SNOWS: 2, 735x15 w/rims, used one season, $10/ea. BA 3-0117.

HOUSE: Huntington Bay, 3 bdrm. ranch, 2 bath, firepl., den, fin. bsmt. w/bar, appli., over ¼ acre, $47,750. HA 7-7463.

HOUSE: 8 rm. ranch, 2 yr., oil heat, 3 appli., attach. gar., w-w, full bsmt., 10x15 patio, beam. ceil., lndscpd., all brick kit., ask. $31,000. 585-1849.

HOUSE: Colonial Spgs., hi-ranch, 4 bdrm., 2 full bath, o.h.w., fin. bsmt., 2 zone heat., 1/3 acre, xtras, ask. $30,000. 643-9137.

PROPERTY: N.Y. State, Mooers, on Canadian border, 44 acres w/dirt rd. front & spg. water, part. wood., ask. $150/acre. 928-1422.

BDRM. SET: 2 lrg. dress., match. mirrors, bkcase hd. bd., full dbl. bd., cherrywood, ask. $225. 665-3943, after 5.

DIN. RM. SET: Duncan Phyfe mahog. cor. closet, buffet, lrg. tbl., 6 chrs., ask. $150. OV 1-8299.

AIR COND.: G.E. Fashionette 5,000 w/thermostat, $69; Westinghouse Mobilaire, 5,000, $69. 567-5625, after 5:30.

COLOR TV: 21 in. Magnavox, $50. 751-2084.

AMP.: 3 yr. hi fi Marantz 8B stereo & Dynaco PAT-4 preamp, 8 mo., ask. $175. BA 3-7103.

PANASONIC: SE1519 Kips Bay, 4-spd. phono FM/AM/FM stereo radio 60w, 2 air susp. spkrs., under warr., best offer. 938-6123, after 6:30.

BOAT: '61, 17 ft. Skee Craft, '62, 45 hp Merc, controls, steer., xtras, $375. 587-4307.

OUTBD.: '70 Chrysler, 3.6 hp, lg. shaft, 20 hrs., 1 yr. warr. remain., $150. 543-1931, evgs.

MISC.: Bilt-rite coach & dress., comp. layette, other items, never used, best offer. TU 4-1763, after 4.

BOWL. BALL: A.M.F., blk., 12 lbs., $12. TU 4-4744.

HORNET: '70, 4-dr. sed., R&H, auto., 6 cyl., 12,000 mi., 2 new snows, $1,850. OR 6-8716, after 6.

BUICK: '65 Electra conv., tan w/blk. tp., full pwr., $695. 781-3379, after 5:30.

at your SERVICE

This is a free service to Grumman personnel for non-commercial advertisements, accepted on a first-come, first-served basis. Classified advertisements are carried in PLANE NEWS only on the basis that everyone replying to such advertising will receive fair and equal consideration regardless of their race, creed, color, or national origin.
Type or print ad on form available at Employee Services and Engineering counters, and send via interplant mail to PLANE NEWS, Plant 5, Bethpage. List home phone (with area code if outside Nassau or Suffolk). Limit: one ad per person per issue. No item under $10, no firearms or ammunition.

CUTLASS: '66 Supreme, 4-dr. hdtp., 40,600 mi., blue w/blk. vinyl tp., fact. air, pwr. steer. & bks., radio w/rear spkr., new shocks, $1,400. 691-6993.

CAMARO: '69, 4-spd. Hurst, 23,000 mi., 307 c.i., disc bks., posi, wide oval tires, blue. 368-4052.

STA. WAG.: '62 Buick Spec., 4-dr., pwr. steer., radio, 8 cyl., auto., $300. JU 7-0428, after 5.

CADILLAC: '66 de Ville conv., AM/FM, full pwr., air cond., snows, $1,800. RO 6-0864.

CHEVROLET: '59 Impala, 283, R&H, pwr. steer., auto., $125. 661-5124.

PONTIAC: '68 LeMans, vinyl tp., bkt. seats, cons., $1,500. WA 1-2124.

TRIUMPH: '66 Spitfire conv., red, 2 tps., 43,000 mi., new snows. 914 337-2590.

CHEVROLET: '64 Impala, 4-dr. sed., R&H, V-8, $225. 665-1912, after 6.

TRAVEL TRLR.: '67 Avalon, 18 ft., fully self contain., slps. 6, gas, elec., refrig., wall heat, hot water heat, 110v, 12 v sys., screen.-in-rm. MO 7-3285, after 5.

MINI BIKE: Bonanza, 2½ hp Merc., clutch, ft. bk., $80. PA 7-5848.

MOTORCYCLE: '70 Kawasaki 500, less than 5,000 mi., direct., $850. 921-0586, evgs.

ENG.: '62 VW, 40 hp, comp. rebit. & insta., $150. 273-6239.

TIRES: 855x14 mtd. on Olds rim; 4 spares mtd. on Olds rims. GE 3-8754.

SHOP MANUALS: Fact., for Ford Cortina, thru '66, & Peugeot 403; TR - 3 bdy., bk., susp. parts. J. Wachtel, Ext. 1455.

MOTORCYCLE: '70 Kawasaki, 90cc, Bushmaster, 2,800 mi., direct. sig., under warr., $295. 265-6606, evgs.

HOUSE: Patchogue, 3 bdrm., 1½ bath, den w/firepl., eat-in kit., din. rm., gar., carpet, appli., fenc. yd., w/pool, 5 yr., xtras, $32,500. JU 7-7757.

HOUSE: Calverton, 4 bdrm. cape, o.h.w. heat, fieldstone front, $22,000. 727-3359.

HOUSE: Ft. Salonga, 2 yr. col., 9 rm., wood. acre, 5 bdrm., 2½ bath, form. liv. rm. & din. rm., fam. rm. w/firepl., 2 car gar., assum. mtge., ask. $55,000. 757-2061.

HOUSE: Commack, 4 bdrm. col., 2½ bath, lrg. liv. & din. rm., fam. rm. w/firepl., 2 car gar., full bsmt., w-w, s-s, eat-in-kit., fence & patio, $43,500. 543-3732.

HOUSE: Huntington Sta., 8 rm., 4 bdrm., over ½ acre treed, concrete pool, cabana w/hd., lrg. liv. rm., firepl., xtras, tax. $1,300, $40,000. HA 3-1309.

HOUSE: Laurelton, 3 bdrm., 8 rm., new heat., s-s, nr. bus & RR, xtras. LI 1-2102.

HOUSE: Holbrook, 7 rm. ranch, 3 bdrm., ½ to Expwy., pvt. corner plot, all appli., fully carpet., $26,999. 585-5596.

HOUSE: Bethpage Estate area, hi ranch, mother/daugh., 4 bdrm., fam. rm., 1½ bath, maid rm., gar., cent. air., w-w, s-s, ¼ acre, dishwash., cov. patio, o.h.w. heat, $50,000, 938-6140.

COTTAGE: Mastic Bch., insul., alum. sid., s-s, encl. patio, 220 wir., bsmt., cycl. fence, 225x115 plot. VI 7-2224.

PROPERTY: Sullivan County, 20 acres, homesite/campsite, 5 mi. library, pvt. rd. 261-9132.

LAND: Conway, N.H., 2/3 acre in Chalet Vill., w/mt. tp. pool, 3 lakes, tennis cts., piped water, elec. avail., 5 major ski areas nr., $3,900. 586-3511.

DIN. RM.: Danish mod., blk. form. tp., tbl., six chrs., hutch, buffet, ask. $350. HA 3-0637.

FURN.: Broyhill, 9 pc. in. set, 6 pc. bdrm., wal. 221-3032, after 5.

MISC.: G.E. tp., 4 brnr., copper, $30; cust. sofa, trad., 8 ft., $200. 271-4712.

PORSCHE: '66, 912/5, grey w/red int., AM-SW, Bursch exh., 55,000 mi., $2,800. 212-BA 5-7113.

STA. WAG.: '68 Chevelle Nomad, air cond., 25,000 mi., $1,250. 826-1636.

CORVETTE: '66 conv., 427/390 posi, pwr. bks., Koni's roll bar, rebit. eng., new tires, $2,500. HA 7-7286.

STA. WAG.: '66 Chevrolet Caprice, 9 pass., air cond., pwr. steer., V-8 auto., roof rack, poly tires, elec. tail gate, xtras, ask. $1,395. 826-1307.

JERSEY SKIFF: 26 ft. w/6 cyl. Chrysler Marine eng. & drive, cab., hd., etc., nds. work, $200. MO 9-1882.

JON BOAT: 10 ft. alum., $60. 277-3004, after 6.

MOVIE PROJECTOR: 8mm, zoom lens, var. spds., volt. chg-over sys., 110-240v, case, orig. box, $35. IV 9-7324, after 5:30.

AMP.: Baldwin bass w/12 & 15 in. spkrs., $175. 212 591-9067.

TV: 19 in. Zenith B&W port., nds. tuner work, $20. MO 9-1882.

ENCYCLOPEDIA: World Bk. w/20 vol. yr. bks. to '63, $45. 212 523-4810.

MISC.: Women's blue bowl. bag, $12; men's exerciser, $10; port. bassinet w/matt. & liner cov., $10; infant seat; Bilt-rite stroller w/canopy; infant boy's clothes, reason. 666-4351.

MISC.: Clothes dry., G.E. mod. DE620D, 3 cycl., $110; Sears Craftsman rotary mower, 20 in., $55; Ambassador 25 in. rotary mower, $18; G.E. Fashionaire air cond., 7500 BTU, $170; bench saw/blades, $25; Opel Kadett sta. wag., R&H, 39,000 mi., $475; '70 Volvo, 142S, blue, R&H, w/w, snows, 6,000 mi., $2,495. 587-1888.

DACHSHUNDS: AKC papers, champ sired litter, mini, blk., brown, male & fem., $100. 234-1281.

AIRCRAFT: '67 Cessna Superskylane, P206, 6 seats, N4760F; 550 TT A&E, IFR, ARC 540 (360) W GS, ARC 300 (360), Bendix ADF, new Bendix TP, 3 LMB: useful load 1,660 lbs, xtras, ask. $18,500. 692-4042, evgs.

HOUSE: Greenlawn, 8 rm., fully air cond., 2½ bath, 2 car gar., firepl., ¼ acre, nr. RR & shop., xtras, under $40,000. 261-3038.

HOUSE: Islip, 4 bdrm. cust., brick & cedar, 2½ car gar., 2 tiled bath, full bsmt., fin. w/bar, 3 zone o.h.w., plaster, w-w, s-s, cov. slate patio, 100x100 treed, lndscpd., copper gutters, oak fls., xtras, $34,900. JU 1-9332.

HOUSE: Wyandanch, 3 bdrm. ranch, gar., full bsmt., patio, o.h.w., lndscpd., treed, 100x100, no broker, $1,000 down, FHA apprvd. 643-8676, after 5.

HOUSE: Strathmore Vill., 3 Village sch. dist., 4 bdrm. col., 2 firepl., den, 2½ bath, 2 car gar., pool, lrg. lot on cul de sac, w-w wool, $46,500. 698-1595.

HOUSE: Sayville waterfront, 3 bdrm. ranch, 6 rm., front & rear cov. porch., fully bulkhd., Gt. So. Bay, 75x210, sma. bch. on prop., swim. & boat., 6% mtge., take-over w/$216 mo. pmts., $39,000. LT 9-6203.

HOUSE: Farmingdale, 8 rm. ranch, brick frnt., 4 bdrm., 1 bath, playrm., lndry., 3 appli., oil heat, gar., 24x48 pool, 100x180 fully lndscpd., $26,500. WA 2-4615, after 5.

HOUSE: Titusville, Fla., 3 bdrm., 2 bath, fam. rm., din. rm., cent. heat. & air cond., 2 car gar., 5 appli., w-w, rid. mower & tools, lndscpd., xtras, $23,000. 305 267-4373.

HOUSE: Lake Ronkonkoma, 3 bdrm. ranch, fin. bsmt., 1½ batr, s-s, gar., lrg. fenc. yd., $26,900. 585-7481.

HOUSE: Lindenhurst, 8 lrg. rm. col., 2 full bath, det. o'sz. gar., full bsmt., low tax., oil heat, s-s, 75x100, xtras. TU 4-4656.

HOUSE: Cent. Hicksville, mother & daugh. cape, hot water heat, alum. sid., new carpet. in bdrm. & liv. rm., brick front, 4½ rm. down, 2½ rm. up, semi-fin. bsmt., circuit break., 80x100, det. gar. WE 5-8773.

MISC.: Shirley bus. property, $4,900; French prov. 6 pc. din. rm., $200; home entertainment ctr., 25 in. TV, AM/FM, $200. 938-6140.

MISC.: 11 ft. formica kit. counter tp. w/sink, Hotpoint range, copper hd., $25. OV 1-7381.

MISC.: Antique Bohemian gl. overlay lamp, $85; 16 in. match. Dresden figs., $75/pr.; 20 in French porcel. hi-lamp, $20; gl. & silverplate ctr. pc., $60. 433-1374.

OBITUARIES

Plane News has received word that death has come to the Grumman personnel listed below. We extend sincere sympathy to relatives and friends.

ROMEO J. CATALANO of Quality Control, Plant 83, KSC, died February 23. He was 41 years old and had been with the Company since 1957. His home was at 3024 Casper Pl., North Titusville, Fla.

LEONARD K. HELBING died February 25 at the age of 52. He had been with Grumman 17 years and he worked in Tool Fabrication - Tool & Die Shop, Plant 6. He lived at 19 Irving Johnson St., East Northport.

WILLIAM A. SPINELLI died March 4 at the age of 59. He worked in Sub-Assembly, Plant 27, and lived at 2 Laurelton St., Farmingdale. He had been with Grumman since 1952.

ALBERT J. BRUNS, a 22-year man in Planning, Plant 52, Houston, died March 6 at the age of 57. He lived at 506 S. Austin St., Apt. 127, Webster, Tex.

For Sale

TVS: B&W, 21 in. RCA, 19 in. Zenith, $45/both. OV 1-7381.

MISC.: Lgt. oak formica din. tbl., 5 chrs., $75. 221-8995.

DIN. RM. SET: 6 pcs., best offer. HA 7-9683.

FREEZER CHEST: 175 lb. cap., 4 yr., $50. 757-0438.

KIT. SET: 6 pc. Hodar, 4 swivel bbl. chrs., vinyl cov., 2 tone beige, and wood grain, & drk. brown, 42 in. formica tp. round tbl. w/leaf, marble tone, opens to 54 in., $125. 585-7845.

PLAY. PIANO: Comp. rebit., rolls incl., $600. 475-4806.

MISC.: New conv. Texaco hd. oil burner, $30; Ducati motorcycle frame, $15; 5 in. Dumont scope, $15; RK 120 port. tape record. & access., $15. PY 8-4258.

RID. MOWER: 7 hp Ariens, $300. 261-5030.

MISC.: Baby crib, fold. coach carr., car seat, $40; Paragon oil burner motor & pump, $20. 822-1088.

OSCILLOSCOPES: Tektronix, mod. 511AD & 512, $100. LT 9-6203.

CASSETTES: Class., wide select., prerecord., major labels. 541-8382.

TURNTBL.: Garrard w/base, 2, 8 in. Lafayette spkrs., Heathkit 14 w amp., sell or will divide, best offer. 751-6830.

MISC.: Morsan's draw-tite best line tent, 4 man, 8x10 ft., used 4 times, $65; camp. heat., Coleman catalytic, lrg. 5000 to 8000 BTU adj., $30 w/gal. or fuel. MO 1-3502.

MISC.: Rolli T w/Rolli pentaprism-case, close-up set, lens shade, Rollikin 35mm attach., $175. PY 6-9678.

BOAT: 16 ft. clam Garley, new. LT 9-2701, after 5.

BOAT: '69, 17 ft. MFG. fbgl., '69, 85 hp Evinrude, elec. start. slps., 2, elec. bilge pump, compass, canv., xtras, $2,200. 433-4307, after 6.

BOAT: 15 ft. Wolverine, nds. work, fbgl. btm., $35. GR 5-5557.

BOAT: 24 ft. clam, 33 hp Evinrude, in water, $1,100. HR 2-1782.

CAB. BOAT: 18 ft. outbd., wood, $200. 694-9539, after 6.

SAILBOAT: '70 Boston Whaler Squall, dbl. fbgl. hull, self-bailer w/oars, sails, sail bag & bit. in ctr. bd., 9 ft., 2 in., 125 lbs. OV 1-3318.

BOAT: 20 ft., 110 hp Volvo rebit. eng., outbd., lapstrake open skiff, all canv., winter cov. out drive & eng. parts, xtras, $1,500. AN 9-6179.

BOAT: '60 Cruisers Inc., 20 ft., '60, 75 hp Evinrude Starflite, trlr., 8 ft. dinghy, 150 lb. mushrm. anchor, Navy tp., cush., skis, $1,000. WE 8-3417.

BOAT: 14 ft. MFG alum., '69, 33 hp Evinrude, 1 season, #700 Holsclaw trlr., gd. fish. (or skiing), xtras, $800. FO 8-7749.

FISH. EQUIP.: 2 Harnell troll. rods w/full Aftco roller guides; 2 Penn 49M reels w/metal spools & 150 yd. monel, 1 yr. 694-6885.

PONTIAC: '63 Bonneville, 4-dr. hdtp., pwr. steer. & bks., auto., w/w, R&H, orig. owner, $650. 864-8561.

HONDA: '66, 305cc, $350. 671-0517.

plane GRUMMAN news

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For Sale

MUSTANG: '66, 2-dr. hdtp., 289, pwr. steer., auto., new tires, muff., shocks, & bks., 55,000 mi., $850. 928-2616.

PONTIAC: '69 Firebird, 350 c.i., V-8, 4-spd., AM/FM, pwr. bks., $1,850. 724-5989.

CADILLAC: '57, new exh. sys., eng. nds. repair, $70. MO 5-1139.

SEATS: 1 set red bkt. w/slid. tracks, $20; 1 set blk. reclin. gd. for Jeep, w/slid. tracks, $20. 567-1970.

TOYOTA: '69 Corolla, wh. std. sed., nds. limit. work, ask. $400. 587-1099, after 4:30.

BOONIE-BIKE: '70 Heathkit, 5-hp, 4-cycle Briggs & Stratton, 2-spd. transm., ask. $150. BR 3-4151.

TIRES: 4, Monarch 775x14, 1 yr., $20. OR 1-2957.

PARTS: '65, 283 c.i. eng., 2-bbl. gen. & start., flywh., clutch, pres. plate, throw-out bear., bell housing, 3-spd. trans. w/shifter, $225. 293-7359.

TIRES: 4 ply 560x15; 2 new w/w; 3 B&W, reason. 666-0856.

CAMPER: Fully equip. Starcraft, $1,100. JU 4-6633.

MOBILE HOME: 12x56 ft., part. furn., air cond., wash. mach., xtras. 691-2287.

FORD: '63 Galaxie 2-dr., V-8, 363, pwr. steer. & bks., R&H, new snows, w/w, $300. WE 8-1724, after 6.

GTO: '68 conv., R&H, auto., new tires, comp, rebit. motor & transm., 8 cyl., 4-bbl., 390, ask. $1,000. 751-9257.

CHEVELLE: '70 SS, AM/FM stereo & tape, pwr. steer. tp., pushbtn. radio w/rear spkr. & antenna, posi., rear defrost., new w/w & bumper guards, $1,595. 822-2936.

VW: '66 Bug, 30,000 orig. owner mi., $750. 212 427-2735.

CHEVY II: '62 Nova, whi., auto., $150. MO 5-3895, after 4.

CHEVELLE: '70SS, AM/FM stereo & tape, pwr. steer. & disc. bks., 454 c.i., 450 hp, posi, red/blk. int. 997-9267, after 5.

OLDSMOBILE: '68 Holiday coupe 98, vinyl tp., air cond., all pwr., 24,000 orig. mi., $2,700. 587-9387.

FORD: '62 T-Bird, blue, auto., pwr. steer., elec. wind. & front seat, dual exh., 8 cyl., new hvy. dty. batt., R&H, stud. snows, big eng., $675. 585-1692, after 5.

CHEVELLE: '70 SS, 396-350 hp, blk. on wh. int., 4-Krager mags, F70 wide oval Firestones, AM/FM stereo, 4-spd. cons., bkt. seats, 4:11 posi Hoad & lug locks, best offer. 681-7804.

VW: '70 Fastback, nvy., R&H, w/w, 6,000 mi., $2,500. JU 1-5390, after 6.

VW: '65 Bug, nds. some work, $400 or best offer. 298-4948.

MUSTANG: '67 GT Fastback, 289 c.i., 4-bbl., std. shift, dual exh., drk. grn. ext., saddle int. 744-1829.

BOAT: '59 Bluefinn, 18 ft. wood., 50 hp Evinrude outbd., $175, will sell sep. TU 8-5117.

BOAT: '70, 12 ft. alum., car topper, 5 hp air cool. uotbd., $175, will sel sep. TU 8-5177.

LAPSTRAKE: '60, 18 ft. Shoup Princess, wood, '66, 50 hp Merc. outbd., fully equip., $1,250. PY 8-6382.

SAILBOAT: 14 ft. wood, Duster class, dry sailor, 120 ft. dacron sail, $250. 298-4451.

SLICK-CRAFT: 18 ft. SS-180, 60 hp elec. start. Johnson, 18 gal. fuel tank, full canv., dir. drive steer., Holsclaw deluxe tilt trlr., retract. front whl., $2,000. CH 9-8411, after 5.

TREES: Colo. blue spruce, Norway spruce, silver fir, yews, 4 yr. seed. 281-2678.

SEW. MACH.: A&S port., w/attach., $25. MO 9-2892.

SPKRS.: 1 pr. Dynaco, $114. PE 1-3007, evgs.

MAGAZINE: Mod. Railroader, vol. 1-34, '34-'67, comp., index. PI 6-7580.

TRAINS: 2 full sets Lionel 027 freight cars, tracks, switches, actuated cars, bldgs., access., $40. MA 1-3734.

BOAT: '59, 50 hp Evinrude Starfire, V-4, nds. new block, wrist pin bear. & piston assem., as is, $79.95, xtra prop, $12. 589-6767.

MISC.: 2 contemp. tbl. lamps, 50 in. hi, $50/ea.; 2 marble tp. end tbls., match. cocktail tbl. of blk. oriental design, $150, $225 takes all. 724-4694.

OSCILLOSCOPE: EICO, 460, probes, etc., $125. 727-7831.

KITTENS: Siamese, lilac & seal pts., males only, $25. 271-1364.

PUPPIES: German shorthair pointer, AKC, champ sire & dam, dual potential, field & show. 589-7858.

POODLES: Mini/tops, AKC, silver, male & fem., born 1/26, $75. AN 6-1860.

For Sale

SLED: 4 man toboggan incl. seat pad., used once, $15. OR 6-1752.

CARR.: Deluxe Eng. coach, fold., Pedigree, $25. 598-3363.

PANASONIC: AM/FM digital clock radio, wal. case, tone control, sep. lgt. dials, mod. RC-7469, new, $39.50. 212 774-4889.

TRANSCEIVER: Mobile VHF-FM, RCA-CMV-2A, 30-50 MHZ, crystal for Nassau fire band, 30w transmitter disabled, comp. exc. antenna, $60. AM 4-6632, after 5.

GAS BOILER: Nat'l. gas Janitrol, max. w.p. lbs. steam 15, water 45, A.G.A. rat. 50 ft. steam - 340, 50 ft. water - 545, water cap. 82 lbs. ph, rat. input 102.000 BTU per hr., new burner controls, ask. $55. 212 EV 6-4544.

TV: G.E. B&W, 23 in., $40. 928-1043.

RADIO: 5 bands, AM, FM, marine, aircraft & police, 2 telescoping antennas, ext. spkr. conn., AC-DC pwr, $45. IV 3-3369, after 6.

BICYCLE: 20 in., boy's, 3-spd., chrome, Sears Spyder, $30. HA 7-3979.

COUNTRY SED.: '65 Ford, V-8, pwr. steer., std., new snows, trlr. hitch, $800. AN 5-9542.

HOUSE: Wading River, 3 yr., 9 rm. cape, attach. gar., 1 acre, wood, 5 bdrm., 2½ bath, lrg. eat-in-kit., full bsmt., firepl. in liv. rm. & w-w, din. rm., lndry., s-s, 150 amp, appli. 929-6369.

TRAVEL TRLR.: '70, 16 ft. slps. 6, gas/elec., refrig., stove, hd., xtras. MY 1-7195, after 6.

CHEVELLE: '68, 307, V-8, auto, 31,000 mi. 581-2191.

VOLVO: '66, P1800S, red w/blk, int., air cond., Koni shocks, Stebro exh., new Pirelli radials, o'drive, $1,600. 212 TA 3-4628.

TRUCK: '36 Willys pick-up, 283 Corvette eng., turbo/hydro, 370 & 488 gears, comp. rolled & pleat. int., hdrs., ladders, 900x15 Goodyear slicks, Cragars, spare fbgl. front end, more, st. driveable & legal, $2,700. 921-0262.

BUICK: '67 LeSabre, 2-dr. hdtp., cust., pwr. steer. & bks., $975. Paul Mastras, Ext. 2987.

MUSTANG: '67, V-8, auto., radio, 5 E70 poly, tires, 2 snows w/rims. 567-1825.

JAVELIN: '69 wh., 2-dr., 6 cyl., auto., radio w/w, 16,000, $1,500. 727-1194, after 6.

BUICK: '68 Electra 225 cust. conv., air cond., full pwr. & options, 21,000 mi., $2,500. MI 3-7528.

VW: '67 yel. conv., 35,000 mi., new bks., muff., $1,000. 599-6231.

TIRES: 2 w/w 6.95x14, $10. GE 3-8754.

BMW: '67, 1600, radial tires, Becker radio, $1,050. FR 9-4271.

HOUSE TRAV. TRLR.: '67 Shasta, slps. 6, heat., stove/oven, pressure. sink, 25 gal. water tank, lrg. ice box, lrg. dinette, spare tire, xtras, $1,500. PE 1-1813, after 5.

TOYOTA: '68 Corona 4-dr. sed., blue, low mi., auto., bkt. reclin., R&H, snows, $1,200. WE 8-0275.

PONTIAC: '65 Le Mans 326, 8 cyl., 4-bbl. carb., 2-dr. hdtp., burgundy, pwr. steer. & bks., new shocks & bks., 43,000 mi. 212 EV 6-9358.

STA. WAG.: '64 Falcon, std. 6, $400. WE 8-2668, after 3.

FORD: '70 Maverick, stick, lrg. eng. 120 hp, vinyl int., big tires on 14 in whls., full whl. cov., xtra chrome trim, $1,500. HA 3-1761.

MISC.: 2 tires 7.35x15; 2, 15 in. whls.; '28 Packard trunk. LI 1-4651.

HOUSE: N. Babylon 6 rm. ranch, 3 bdrm., 2 bath, firepl., patio, attach. gar. 667-7931.

SAILBOAT: '67 Seafarer K/CB, 23 ft., fbgl. w/teak trim, A 1 spars, 4 berths, sails, tilt-up elec. start, 7½ hp outbd. aux & steel cradle, $3,500. 427-2650.

BOATS: '61, 26 ft. Trojan Exp. cruiser w/185 hp Interceptor eng., rebit. in '69, slps. 4, new Navy tp. & curt., shaft & prop, full galley, dinette, hd. w/sink, 110v dockside lgt., fbgl. dinghy, xtras, $3,800; 12 ft. wood runabout w/18 hp Merc. O.B., $125. 751-2533.

CAB. CRUISER: 22 ft. Trojan, upper part of cab. (only) burned, galley w/icebox, sink, stove, 2 bunks, hd. w/approv. elec. toilet, 100 hp Gray Marine inbd., $750. SU 1-2992.

BOAT: Elscott, flybridge, Sport Fisherman, 34 ft., slps. 4, galley, hd., comp. rebit., 210 hp Chris Craft, 2½/1 reduc., s-s radio, depth find., $4,200. 541-1945.

RAMBLER: '66 Ambassador, 8 cyl., pwr. steer. & bks., bkt. seats, air cond., $495. JU 5-8126.

OLDSMOBILE: '66 Cutlass, 2-dr. hdtp., pwr. steer. & bks., air cond., $375. MY 2-5126.

For Sale

TROP. FISH: 50 asst., $25. AT 9-3018, after 5.

DATSUN: '69, 4-dr. sed., 4-spd. sync., yel./blk. vinyl int., ask. $1,375. 744-5820, after 5.

FAIRLANE: '64, std., 4-dr., 8 cyl., new tires, 80,000 mi. 293-5852, after 5.

PONTIAC: '67 GTO conv., orig. owner, 400 c.i., 350 hp, turbo-hydra. trans., bkt. seats, fl. cons., pwr. steer. & bks., $1,400. 666-0681.

COMET: '64 Caliente, 4-dr. sed., auto., new batt., snows, $550. MY 2-5126.

OLDSMOBILE: '55, pwr. steer. & bks., R&H, new batt., nds. bks. & front end work, best offer over $25. MO 5-5675.

CAMPER: '67 VW, fact. equip., pop roof, lug. rack, 8 ft. canopy, s-s, sink, $1,850. CH 9-3698.

MISC.: 2 snows, 750x14 on rims, $20/pr.; car rack, $10; spd. read. mach., $90; brown human hair fall, $25. CH 9-9344.

MISC.: 2 tubeless tires, 650x13, mtd. on Ford whls., 2 Corvair whls., $15/ all. 271-4486.

MISC.: '68 Buick LeSabre, 2-dr. hdtp., vinyl seats, & top, rear defrost., lgt. tan, $1,900; Eumig 8mm sound proj., zoom lens, $100; Panasonic stereo 8 trk. record/play bk. tape deck, $80. Bren Schuierer, Ext. 8-4218.

BOAT: 26 ft. cabin workboat, Universal, 6 cyl., inbd., afloat in Bay Shore, $500. 666-5970.

BOAT: 16 ft. Thompson, 75 hp Evinrude, elec. shift, pwr. tilt, tach, clock, spdometer, bilge pump, trlr., etc., $850. AN 5-0479.

BOAT: 12 ft. w/windshld., cust., plywood const., fbgl. cov., parts for trlr., nds. some work, $95. 724-8855.

BOAT TRLR.: 14 ft., 500 lbs. cap., new, $100. 277-3004, after 6.

HO RAC. SET: Auora, 36 trk. on decor. 4x8 bd. w/N gauge trains, xtras. 265-5692, after 6.

CALENDAR of events

Notice of events for period March 26 - April 9 should reach Plane News by **Tues., March 16.**

Amer. Inst. of Aero. & Astro.: Tues., March 23, 6 p.m., Plt. 30 Cafe, dinner mtg. Larry Mead Jr. on "Space Shuttle." Mrs. Jeanne Smart, 595-3086.

Aquatic Assoc.: Tues., March 16, 9 p.m., Larkfield Country Club, intro. to Environmental Tech. Seminar. Bob Skirkanich & Klaus Feindler on "Water Pollution." John Reeves, Ext. 7551.

Amer. Prod. & Invent. Cont. Soc.: Tues., March 16, Stouffer's, Garden City, dinner 7 p.m., joint mtg. w/Nat'l. Assoc. of Accts. Carl Paladino, Treasurer of GAC on "Defense Contracting & the Aerospace Ind." Norm Heilweil, Ext. 1855.

Coin Club: Wed., 12:05-12:50, Plt. 25 Vendor Conf. Rms. Ken Hale, Ext. 1936.

Dance Club: Every Tues., 8:30-10 p.m., St. Francis of Assisi, Northgate & Clay Pitts, Greenlawn, ballrm. danc., $2/session. Len Luke, Ext. 9682.

Eng. Mod. Soc.: Tues., Apr. 13, 7 p.m., Plant 18, bus. & disc. Harvey Knopf, Ext. 7944.

Ex-Servicemen's Club: First Mon. of month, 7:30 p.m., Plt. 28 Audit., exec. & gen. mtg. Al Kordula, Ext. 87259.

Human Factors Soc.: Fri., March 19, 6:30 p.m., NYU Med. Ctr., Inst. of Rehabil. Med., Research Wing, Rm. 610 & 610A. Prof. Erwin R. Tichauer on "Bio-Mech., the Structural Basis of Human Performance." Jerry Fox, Ext. 9431.

Retiree Club: Wed., March 31, 1:30 p.m., Holiday Manor, Bethpage, month. mtg. Herbert Krastl, Coop. Ext. agent, Agricult. Div., Nassau County, on "Lawn Care & Gardening." GAA, Ext. 2133.

Rod & Gun Club: Wed., March 31, 8 p.m., John's Oasis, Hazel St., Hicksville, committee budget appr. & '70 awards. Chet Baumgartner of GAA. Walter Schillinger, Ext. 57-617.

Soc. of Mfg. Eng. (form. ASTME): Sat., March 13, 7:30 p.m., House of Jericho, Huntington, 20th anniv. dinner dance & install. of Chapter 88 ofcrs. Dick Knoll, Ext. 2859.

Stamp Club (Bethpage): First 4 Wed. of month, 5 p.m., Plt. 30 Cafe, swap., circuit bk. sales, auctions. Marty Harow, Ext. 9172.

Wgt. Watchers: Every Tues., 4:45-6:45 p.m., Plt. 28 Audit., Mimi Ackerman, WW lecturer. Lee Badalamenti, Ext. 2171.

Evans raps critics, mismanagement in assessing industry

If there was ever a clear assessment of where the aerospace industry stands today and its promise for the future it came March 3 in New York City when Lew Evans addressed more than 200 members of the Bank Credit Associates of New York.

Evans was blunt and to the point as he sketched the history of the industry, some reasons for its current difficulties, and what it must do for its own—and the nation's—benefit.

The industry collectively, he said, "represents the largest source of technological knowledge and managerial expertise to be found anywhere in the world, and that total talent has at its disposal the finest facilities and equipment available." He put its strength this way:

" . . . any industry that can bridge the technological gap between man's first crude powered flight and interplanetary travel in less than seven decades has to be among the most capable and dynamic industries that has ever evolved."

The heart of Lew's message, however, lay less in the spectacular successes of the past than in today's remediable ills and the opportunities for progress. The current plague of problems (which he sees as short-lived) comes from three major causes as he sees it:

- The two-year business downturn
- Anti-military and anti-technological sentiment in the nation
- Industry's sloppy management.

The hard realities, he said, are that business has been hit by "our tight money economy. The airlines recorded zero growth for 1970, and commercial and corporate aircraft manufacturers have been forced to shut down—or slow down—their production lines. Grumman was no exception. . . . "

SST 'crucially important'

He dealt at length with what he termed "the currently fashionable anti-military and anti-technological factions in both public and governmental sectors.

"Commercially, the outstanding victim of this movement has been the Supersonic Transport program, the development of which—in my estimation—is of crucial importance to the existence of our industry, and to the competitive standing of our nation."

He mentioned, too, that military aircraft and NASA (National Aeronautics and Space Administration) sales fell last year and he cited the "problems encountered by such military programs as the C-5A transport and Cheyenne helicopter. . . . " In the case of the F-14, Evans stated that "anti-military members of Congress" questioned the program but, "Fortunately, those in Congress who are most knowledgeable about the defense of this Nation saw and supported the critical need for a new fighter, a tactical jamming system, and an airborne early warning and control aircraft."

And he pointed out that the U.S.'s last new fighter was built 15 years ago—while the Russians were building a new or modified aircraft "in each successive year."

In the space field, Evans declared that "out business has also been bruised by the anti-technological crowd. . . . "

He then made it clear that the industry itself had created some of its problems, that "we were spoon-fed by Government procurement procedures that permitted the development of some useless systems and appeared to pay some premiums for loose management." Then he said:

"And I, for one, am glad . . . that more stringent management of the Government's procurement processes is in the works. The 'Fly before buy' concept, if properly applied, can result in belt-tightening precautions, finer aerospace systems, and more effective national defense. It may help to close that credibility and trust gap that has plagued us for so long. From here on out, our industry should be subjected to milestone standards which measure the worth of a system before other than long-lead funds are committed."

Worst over

Evans thought that the worst was over, though 1971 would be tough; that the anti-military and anti-technological wave had crested; that the Gross National Product is likely to go up; and that, after "trimming fat," it seems "we're on our way back now"—and, moreover, with a "significantly leaner aerospace industry."

The road back, he said, won't be simple, and the word "diversification" is hardly the answer. "It's an uninformed man," he said, "who thinks that our industry can diversify overnight and begin producing mass transit vehicles, pollution abatement devices, low-cost housing units . . . or even bottle tops and beer cans, and prosper by it.

"It isn't that we're technologically incapable. . . . it's simply that the markets don't exist." So the Federal Government will have to get the ball rolling.

Another deterrent to diversification, said Evans, is that "We're not mass consumer market-oriented, and we're not able to function profitably under the different types of contracts and procurement processes that exist in other markets." But he made it clear that he's **for** diversification in aerospace, and that the Company has been diversified for years: building truck bodies and boats, marketing a prefabricated modular house, camper vehicles, and buses, and is now studying a high-speed tracked air cushion vehicle, making wider use of our computer talent, and getting into the field of ecology. But he stressed that "Grumman is in aerospace—and I mean 'pure' aerospace—to stay."

There's an overpowering reason for this: The Company's made its greatest contributions, and earned most of its money, in aerospace endeavors. "Last year," said Lew, "our Government business brought in 93 percent of our total sales, and next year it's going to be the same. There's no doubt about where our best market is located now."

Lew Evans
Lays it on the line

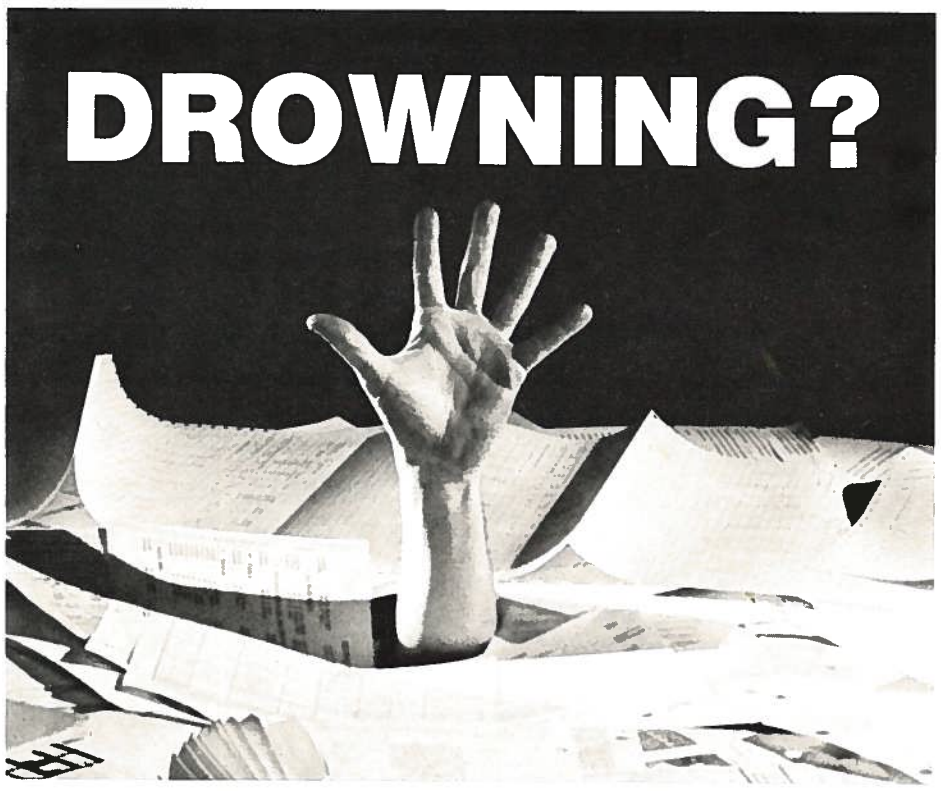
The next big project, said Evans, is "the spaceplane," which he believes will someday "be as viable to mankind as the airplane." And he said:

"Our Nation has a tremendous stake in space—economically and technologically—and we now need a better way of operating and maintaining a moderate, long-range, manned-space program within reasonable costs. It is uneconomical and inefficient to expend costly boosters after one launching, to abandon intricate vehicles and other expensive hardware in space, and to deploy naval task forces to recover command modules and crews. The time is past when the national commitment of a space goal such as ours to win the race to the Moon was the key to our national treasury for almost unlimited funds. We must now develop a spacecraft that can carry men and cargo into space and return to earth much as a commercial airliner operates in our own atmosphere."

Space goals

As for space goals for this decade, he referred to those set by a Presidential task force early last year: "(1) continued exploration of the moon, (2) exploration of the planets and the universe, (3) substantial reduction of the cost of space operations through use of a reusable spaceplane, (4) extension of man's capability to live and work in space, (5) speedup of the practical applications of our space technology, and (6) greater international cooperation. It is the reusable orbiting spaceplane, with its potential savings, that is the key to a sound and viable space program."

In closing, Evans said that "I think that we're going to see a philosophical return to the old maxim which says that it's strength, not weakness, which offers the best guarantee of world peace, and it is the collective talent of the aerospace industry that can provide our country with that strength. It will be the aerospace industry also, with its dynamic new technologies—at present and in the future—that will set the pace for America's continued prosperity."



Drowning in a sea of paperwork?

Grumman was able to reduce paperwork costs by $600,000 in the last six months of 1970, thanks to lots of cooperation with the "STOP" (Stop Tons Of Paperwork) Program.

To make it easier for Grummanites to "sign up and get off" distribution lists for documents and (drawings they no longer require, the pick-up system has been re-designed so that it is no longer limited to Corporate distribution counters. More than 80 new posters have been displayed on bulletin boards and areas near mail pick-up stations.

Easy procedure: Simply take a coupon from the new poster, fill it out and attach it to the unwanted document, and drop in the interplant mail.

Any groups desiring additional posters, coupons, or other details should call "STOP" at Ext. 2451.

Bruce Tuttle, chief of the "STOP" Tiger Team, urges continuing cooperation in knocking unwanted paperwork off the circuit. Suggestions for paperwork savings via Project Sterling can bring cash awards, too.